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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—14TH YEAR. SYDNEY: SATURDAY, DECEMBER 17, 1927. No. 25.

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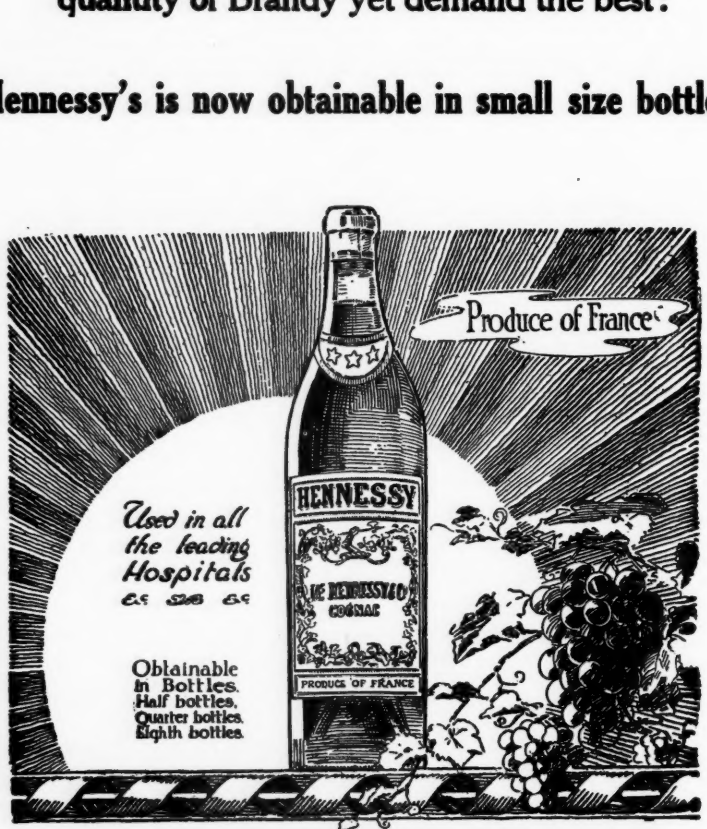

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PHYSIC AND PHYSICIANS IN ANCIENT EGYPT.[1]

By HARVEY SUTTON, O.B.E., M.D. (Melb.), B.Sc., D.P.H. (Oxon.),
Principal Medical Officer, Department of Public Instruction, New South Wales.

THE birth of medicine, as indeed of all culture as we know it today, must be chiefly located in the two great river valleys, the Nile and Mesopotamia. Here the first great permanent settlements of historic times were made possible by the discovery of cultivable seeds and the combination of a rich alluvial soil, abundant sunshine and plentiful water supply for irrigation.

Man no longer condemned to the restless nomadic life of the hunter, fisherman or pastoralist, developed community life with all its possibilities in specialization.

In Egypt, "the gift of the Nile," a corridor over a thousand miles long reaching from Central Africa to the Mediterranean at the gateway of Asia, we see the constant intrusion and fusion of racial elements from Libya on the west, Arabia and Syria on the east and north-east, Ethiopia on the south and Crete and Greece across the seas on the northward.

One of these intrusions, perhaps from Libya, brought with it the ability to convert sound into script and Egypt thus possesses the longest historical record of any great nation, while corn and the annual inundation made her one of the wealthiest and most civilized in ancient times. Modern science and modern medicine date back to Hippocrates in the fifth century before Christ or about twenty-three centuries ago. At a conservative estimate ancient Egyptian medicine dates back another thirty centuries to the early dynastic kings. David and Solomon, the leading rulers of the Old Testament, are approximately half way between ourselves and the pyramid builders. Even then medicine did not spring like Athéné fully armed from the brain of Jove. Many centuries of patient empiricism, many enlightened minds which groped their way through the mists of ignorance and superstition, must have preceded the great Egyptian sage Iemhotep, the first great name on the record of medical history.

Egyptian medicine has never received the credit that surely is its due. The inferences on which this assertion is made are as follow:

First is the fact that the Egyption books of medicine which formed six of the forty-two books of sacred writings, have been completely lost. The perishable character of the papyri and the destruction of the great Alexandrian library sufficiently explain this.

Only one considerable papyrus, the so-called Ebers papyrus, dealing with medical matters exists today.

Another complication is that in accordance with ancient custom which persisted among the Greeks, such lore was kept secret and only passed on to the initiated. In the Hippocratian oath we see this close corporation or caste controlling knowledge.

> All manner of instruction whether by word of mouth or by other means, will I impart unto my sons and unto the sons of him that taught me; yea and unto all disciples that are under bond and oath after the custom of our craft but to none other.

Elliot Smith has among others pointed out that the higher religious ideas were jealously safeguarded by the initiated as their own property and only a garbled version provided for the lower intelligence of the profane proletariat.

Aristotle was remonstrated with by Alexander the Great, a former pupil, on this very ground that he was broadcasting for general consumption secret knowledge which should be the preserve of the few. Aristotle's reply virtually acknowledged the rebuke was not inappropriate. His excuse was that the knowledge, though published, was in such a form that only the initiated would be able to understand it.

Herodotus, too, tells how he was inducted by the priests into the secret mysteries of their knowledge and that he was unable therefore to say anything about it. He, however, points out the great popular esteem in which the Mediterranean peoples acknowledged the preeminence of the Egyptian physician.

Two breakaways from this secrecy inculcated by the temple caste throw light on their great knowledge. Moses, who was "learned in all the wisdom of the Egyptians," received his training at Heliopolis, the great medical school and no doubt used his knowledge in developing the greatest sanitary code of ancient times. The emphasis on the word "clean" in *Leviticus* is interesting, as the Egyptian priests shaved their whole body every third day and washed in cold water twice every day and twice every night—a ritual that might appal even the most modern surgical team.

Hippocrates, whose writings form the first books of modern medicine, spent some time in Egypt and no doubt benefited by this post-graduate course. The humoral pathology was evolved from Egyptian sources, while the mystical power of numbers held by the Egyptians is well shown in the doctrine of critical days.

Beyond such inferential evidence it is difficult, indeed impossible to get any adequate idea of the ability of the Egyptian physician. The vast majority of the remnants of this remarkable epoch in human history are stones. Stone is the only thing that has defied on the one hand the forces of nature, earthquake, weather changes, sandstorm and flood and on the other the still more drastic efforts of the human despoiler, the Egyptian tomb-robber, the Persian and Assyrian invader, the Coptic iconoclast, the Arab quarryman, the present day fellaheen in search of manure and last and least excusable the amateur or tourist archæologist. Stone records of ancient Egypt deal almost entirely with temples and tombs, that is, with religion especially in its funerary aspects. The impression is thus given that the Egyptian chiefly concerned himself with the problem of his own welfare in the afterlife, an easy

[1] Read at a meeting of the Section of Medical Literature and History of the New South Wales Branch of the British Medical Association on August 18, 1927.

but surely erroneous conclusion. The same might just as easily have been said about the Ptolemaic age, but that the chance discovery of many papyri of this period showed life then was full of the same amusements, the same litigation, the same human ideas and behaviour as exist today.

The archæologist himself has unconsciously been to some extent an obstacle in the way, as his usual literary and historical interests do not fit him to interpret what medical or scientific data come his way. Hence the works of such great Egyptologists as Flinders Petrie, Breasted, Weigall, Bridge, Maspero *et cetera* tell us very little concerning these special aspects of ancient Egyptian lore. Elliot Smith, Lortet, Ebers and others have fortunately made valuable contributions to our appreciation of ancient pathology and medicine.

My purpose this evening is, however, not so much to discuss their medical knowledge in detail—Stewart McKay, Caton, Finlayson, Neuberger *et cetera* have covered the ground most thoroughly—but rather to indulge in some travel talk, illustrating from my own photographs, monuments concerned with great medical worthies of the distant past.

In thinking of ancient times our minds at once go back to the pyramids and the pyramid kings, Khufu (Cheops) Khafra and Menkaura, who built as their tombs the great pyramid and the second and third pyramids, some of the earliest demonstrations of exact mathematical skill applied to engineering and architectural problems.

They belong to the fifth dynasty of the ancient kingdom. Perhaps seven centuries previously Menes had established the first dynasty of kings who ruled over a united Egypt. The union of north and south was perpetuated in the red crown of lower Egypt and the white diadem of upper Egypt. While the totems of original kingdoms and sects show themselves in the various names of the Pharaohs, where Hawk, Reed and Hornet, Vulture and Cobra, Hawk of Gold (Set) and Son of the Sun God (Ra) are represented.

Menes is the culminating point of ages of predynastic and prehistoric culture. Control of irrigation had already been established and culture both in art and medicine had already reached a high standard. The discovery of copper had lifted mankind out of the Stone Age.

Our first medical titbit is from the reign of the successor of Menes, the second king of the first dynasty, Athothi (Aha-teta). The priest-historian Manetho states that he as a physician had books written on anatomy. The Ebers papyrus gives a prescription for a hair restorer prepared by his queen Shesh. Baldness is said not to be rare among physicians in modern times. Weigall states that by a strange coincidence a fringe of false hair was found in his tomb. Evidently the hair restorer which was made from the claw of a dog, the hoof of a donkey and some boiled dates, was just as efficacious as hair restorers of the present day.

The fifth king Usaphais (Hesepti) was, we learn, well informed in the anatomy of the time and the Ebers papyrus quotes a prescription from a book of this reign.

Our next reference comes some centuries later—three hundred years or so after Menes. The second king of the third dynasty, Tosorthos (Neter Khet Zoser), was revered in after years as a great patron of literature and medicine. The shining light of his reign was the greatest physician of ancient times, I em hotep (Imouthes)—"he who cometh in peace"—who later became a demigod and was identified with Asklepios. Small bronze figures are found showing him with long-headed well shaped head wearing a skull cap or bald. He is seated on a throne without a back, clad in a skirt reaching to the calves of the legs and with a gold necklace around his neck. He holds a partially unrolled papyrus scroll in his hands. This physician-magician-priest was also a philosopher, administrator and architect.

Later on he was given a god, Ptah, the creator, as a father and every scribe before starting work poured out a few drops of water as a libation to Iemhotep his patron divinity. Not only was he noted as a physician, sage, astronomer, but he is the world's first great architect known to fame.

We may still visit one of his greatest monuments, the step pyramid at Sakkarah near Cairo, the first great stone building. This cenotaph of Zeser covers a granite paved passage down to two tile-decorated chambers in the rock seventy-seven feet below the surface. Above this foundation of natural rock rises a roughly pyramidal structure built of great limestone blocks and rising in six great steps or tiers to a total height of about two hundred feet. The sides of the base are three hundred and ninety-three and three hundred and fifty-one feet and each ledge is six and a half feet wide. It was the first and greatest stone building of its day. In the Ptolemaic period over 2,700 years later, the plan of this master craftsman of a temple at Edfu was carried out.

The temple at Edfu is perhaps the most complete temple structure at present extant. Erected in the time of the Ptolemies, it is still in a fair state of preservation. In the front of the temple area is the birth house for the queen. The great pylon, one hundred and ten feet high, in front admits to a large forecourt, the door being guarded by two great stone hawks. Through the stone screen on the inner side of the forecourt we enter a great pillared hall with its twelve great columns. Following this we come to a smaller pillared hall and two successive rooms or vestibules. To the second vestibule only priests were admitted. This vestibule leads to the sanctuary to which kings and chief priests were alone admitted. Lit only by a single shaft of light from the roof, it contains the polished granite shrine or naos with its sacred figure of the Hawk God and a central altar for the sacred wooden boat. The doors are all in the axis of the temple which is orientated to Orion on the south and the Great Bear in the north. From the roof a fine view of the village and district generally can be obtained. Many chambers, one of which was a library, surround the sanctuary.

Among the many scenes carved on the temple walls is a representation of the wise man, I em

hotep, wearing the leopard skin of a chief priest, reading from a scroll the history of a civil war between two great sects, those of Horus defeating those of Set at Heliopolis in the three hundred and sixty-third year (?) after Menes. From the eye of Horus is derived the ℞ sign at the head of modern prescriptions. Seven hundred miles from the sea the Nile passes over the second cataract and here in recent times the Assuan dam has been erected. Holding up the Nile during the inundation, it raises the level above the roofs of the temples on the island of Philae. Nowadays a visitor is rowed alongside the tops of the pylons of the great temple of Isis, while under the waters are the colonnade and courtyard on to which opens a temple to Iemhotep erected about 200 B.C.

At Deir el Medineh on the west bank opposite ancient Thebes is a small Ptolemaic temple to two sages, Iemhotep and Amenhotep.

From the time of Zoser for two centuries was the great pyramid building era, the greatest of all being the three at Gizeh erected within a period of seventy years by the first, third and fourth kings of the fourth dynasty.

Our next medical reference is in the reign of the second king of the next (fifth) dynasty, Sahure. One of the favourites of this Pharaoh was the chief physician Sekhmet-Enenkh, who was granted permission to have a fine stone slab erected in front of his tomb of the "false door" type.

> Since my nostrils enjoy health (through your skill), and as the gods love me, may you depart at an advanced old age in honour to your last resting place.

Nefer fra's reign, the fifth of the fifth dynasty, furnished an incident of medical interest. The chief justice and architect, Weshptah, had taken the Pharaoh to see a building he was constructing and was congratulated by the Pharaoh on the good work done.

While yet speaking his majesty noticed Weshptah did not hear him and cried out that the old man was ill. Taken to the palace the royal family and nobles, the men of learning and chief physicians were ordered to attend and a case of medical writings to be brought. But these revealed to his majesty that Weshptah was lost and the king became exceedingly sad and retired to his room. This is probably the first consultation on record.

A curious specimen from the early dynasties is from the first king of the sixth dynasty, Teta. The tomb had been rifled in very early times, but in it was found a mould for a death mask, in all probability of the king himself four thousand five hundred years ago. It has a family resemblance to the portrait statue of the next Pharaoh, who was son of Teta.

Medical education was part of the equipment of many if not all priests and scribes.

The scribe was the trained man from some university. Many of the medicals selected On or Heliopolis. Here was the open door to success, if his intelligence were above the average. The patron god was Thoth (Tehuti) an ibis-headed god, the careful, deliberate search of the ibis suggesting its scientific association. The chief animal connected with Thoth is the baboon, always noted for its serious, thoughtful expression. The diorite cynocephalic baboons found in the temple of the Sphinx (so-called) are the oldest figures of gods known. The scribe is usually represented squatted in cross-legged fashion with a scroll on his lap and perhaps a monkey above. Among the gods with medical associations may be mentioned the hippopotamus (Taueris), guardian of pregnancy and the cat goddess of pestilence, Sekhmet.

The scribe, if he prospered, might become among the greatest in the kingdom and the Egyptian noble and his wife often appeared to be most admirable human specimens, for example Rahelep and Nerfert in the third dynasty and later Ptahmai and his wife, both charming groups.

The learned man, the scribe and administrator, is well shown in the woodcarving at the beginning of the pyramid age of Hesire (Rahesy) with his rod of power and his palette and brush for pictographs. The pictorial script had already been thoroughly developed together with its cursive derivative (heiratic) even in the early dynasties. A rational calendar had long been in operation. The physician and magician were the same and the court physician held important rank. As a great mark of favour he might be granted the privilege of erecting a false door to his tomb through which his disembodied spirit or *ka* might pass to enjoy the offerings in the antechamber.

The wall of such a tomb might be decorated with operations he had carried out, as in the tomb of Æenkh me hor (Sesi) at Sakkara, where circumcision is depicted.

One may note that even the highest caste were circumcised, as is well shown in the *ka* statue of the Pharaoh, Ewabra, thirteenth dynasty.

While the bull was worshipped, but not eaten, but revered as Serapis, the cow was the goddess of love, kept chiefly for breeding, though the Egyptian was at all times fond of milk.

The association of architectural and medical knowledge and the inclusion of medicine as part of the training of many priests and scribes are the excuse for including a great and perhaps the most powerful man not of royal blood in ancient history.

Senmut, born of the common people, "his ancestors were not found in writing," rose to be the power behind the throne of the greatest Egyptian queen who reigned as a Pharaoh, Queen Kemare Hatshepsut (1516-1481 B.C.) the Queen Elizabeth of a great epoch. Senmut built for her a wonderful temple, "vast and unique" at Deir el Bahari, opposite Thebes. A striking background of great limestone cliffs, seamed with gigantic vertical clefts and arranged in longitudinal horizontal striæ, harmonizes with the series of colonnades in open quadrangular form connected by a central ramp which leads up to the holy of holies, the central shrines. One of these depicts the Queen Hatshepsut under the care of the protective goddesses sitting on an obstetrical stool. Many years later (twelve hundred years or so) under the Ptolemies a shrine

to Iemhotep was added to these main shrines, possibly a medical tradition associated with its foundation.

Obelisks were in much favour in this golden period of great Pharaohs. These familiar objects, so characteristic of Egypt, seem to be associated partly with the worship of the sun god, partly with a still more ancient worship of standing stones, while also phallic symbolism is represented. Queen Hatshepsut ordered to be erected two great obelisks at the enormous temple of Karnak (Thebes), probably the greatest ruin in the world today. These obelisks are the work of Senmut. One still remains standing ninety-seven feet high and eight and a half feet square at the base. Yet this enormous single block of stone, according to the inscription, had been quarried out, transported hundreds of miles by boat and erected in position, all within the period of seven months. These rose red granite "needles" tipped with a casing of electrum, probably a gold-silver alloy, must have been a fine sight and fully justified the pride of the queen (as recorded in heiroglyphs on the stone) in this remarkable achievement.

The importance of Senmut is suggested by several facts. He was permitted to make himself a proper rock tomb in the burial site reserved for the nobles and he was greatly hated by the opposing faction which favoured Thothmes III (Menkheperra).

On the death of the queen, she was succeeded by Thothmes III who, though officially the royal consort, had been kept in the background. Thothmes later proved his quality by his great conquests and in his day Egypt reached the limit of her dominion and this Pharaoh ruled from the banks of the Euphrates to central Africa. Apparently he was greatly incensed at his previous subordinate position in the queen's household and showed his resentment by obliterating from the monuments in many places the names of both Hatshepsut and Senmut—an unusual, if backhanded, compliment.

Amongst many other offices Senmut was the guardian and steward of both of the royal princesses Nefrure and Merytra in turn. Of four of his statues I have seen, three are perhaps unique and fascinating in their inclusion of the young infant (Berlin) or girl (Cairo). Evidently he was proud and one may suggest, most devoted to his ward.

Senmut may claim to be perhaps the first great child-lover thirty-three centuries ago. In the two Cairo statues he is represented in polished hard-stone, life size, squatting, as befits a great scribe, with his knees drawn up inside his robe and with the little head of the young princess Nefrure appearing in his lap. Both heads are beautifully modelled and they form a most attractive pair.

The second great name in Egyptian medicine is that of Amenhotep, the son of Hapu, a great architect and philosopher under Amenhotep III (B.C. 1411-1375), "the most celebrated official in Egypt of any age." Amenhotep or Amenothes was the Theban representative, Iemhotep the representative of Memphis. His capacity as an architect may be conjectured from the clustered papyrus bud columns of the colonnade built for Amenhotep III at the temple of Luxor.

Before the great temple of Karnak, the greatest ruin in the world today, he erected a double tower or pylon with two great obelisks in front and a colossal portrait statue of the Pharaoh; the pylons alone remain.

Finally, on the other side of the river, the west bank, was erected the largest temple of all, as the monarch's own mortuary temple. Two enormous giant statues of the Pharaoh, each cut out of a single block of stone about seventy feet high and close on one thousand tons in weight, were placed before the front of the temple at the end of a long avenue of sculptured jackals. The temple and the jackals, probably the greatest work of art ever wrought in Egypt, have vanished. The colossi still remain, cracked by earthquake, yet of interest to modern tourists, as they were to the Romans and Greeks, who named one of them, the Memnon, and was supposed to sing at dawn. In Amenhotep's reign Egypt reached its acme of magnificence. His queen, Tiy, was a most important personage and colossal statues of the pair are to be seen in the Cairo Museum.

The sage Amenhotep outlived his royal master by at least thirty years and died at the great age of over one hundred years.

His reputation as a wise man and as a leader in medicine was second only (if at all) to Iemhotep and their names are coupled together as demigods in the Ptolemaic temple of Deir el Medineh.

The last of these ancient worthies to be included is Kha-Em-Uas, the favourite son of Rameses II, perhaps the best known Pharaoh. Rameses held in great esteem Min, the one-armed and one-legged son of reproduction and maintained an enormous harem begetting over one hundred princes and over fifty princesses. Khamwese accompanied his father to war and later became the High Priest of Ptah at Memphis; he seems to have been famous for his priestly wisdom and a great magician and so captured the imagination of the times that he became the favourite hero of many folk tales and fairy stories. Rameses ruled for sixty-seven years and at his death at ninety-years of age (1225 B.C.) his thirteenth son succeeded him, Khaemuast dying some years before his father, probably about 1251 B.C.

Pluralists were common and many of the scribes were most versatile. Religion, magic and medicine have in the past been inextricably mixed together. The Kherheb priests acted on the supposition that disease is demoniac possession—an idea mentioned even in New Testament times. The magical power of the prescription, the use of amulets, the practice of incantations were considered to reinforce and even to replace the use of drugs and the employment of baths, massage *et cetera*. The psychological experience of men like Khaemuast must have been profound. They would set out a prescription such as appears in the Ebers papyrus and follow it up by an incantation. Pharmakon meant magic as well as drugs.

Another, the sixth, which was made by the goddess Isis for Ra himself to drive out the pain that was in his head:

Coriander seed.
Seeds of the poppy.
"Saam" leaves.
Seeds of the "shames" plant.
Juniper berries.
Honey.

Make these into a single substance, rub down with honey, smear it over . . . so that he may get relief quickly. If all these remedies be applied to a patient suffering from pain of any kind in his head or from a discomfort or trouble of any kind, he will obtain relief immediately.

The rational medical practitioner was often replaced or supplemented by the magician, as the following incantation shows.

Depart cold, son of a cold, thou that breakest the bones, destroyest the skull, partest company with the fat and makest ill the seven openings of the head.

The servants of Ra beseech Thoth.

Behold I bring to thee thy recipe, thy remedy to thee, the milk of a woman who hath borne a son and the "smell" seeds. Let that drive thee away. Let that heal thee. Let that heal thee. Let that drive thee away.

Go out on the floor. Stink! Stink! Stink! Stink!

Elliot Smith found in his examination of mummies many instances of the use of skinned mice for severe illness in children. One of the favourite amulets the sacred eye of Horus, the Sun God, persists still in modified shape in the preliminary ℞ of the modern prescription.

Thorough as has been the examination of mummies in recent days, the data as to actual disease is scanty. Osteoarthritis is the common disease, but no evidence of bone syphilis or of rickets was found. Arterial disease has been noted. Dental caries and alveolar abscess became more common as luxury increased. Tuberculosis is not rare. Leprosy was well known and probably smallpox. Examples of clubfoot, harelip, achrondoplasia occur, while the eggs of both *pediculosus capitis* and of *Bilharzia hæmatobia* have been seen. Eyelid paint was universally used as a preventive of ophthalmia, while the plagues of Egypt give a wide range of troubles.

In conclusion I may mention a few observations concerning the Egyptian ideas of human proportions. We have models of the human figure frequently found in tombs. These had two uses. The great noble would be accompanied on his journey through the underworlds by a proper retinue and his wants attended to while his dependants and favourites, unable themselves to afford the requisite tomb and spells *et cetera*, to ensure a safe journey, could attach themselves to the great man by having their *ushabti* statuette in the tomb.

Apparently in their sculpture though conventionalized as befitting its monumental character and complete mastery both of subject, portraiture and of method, the hardest stone is manifested. The figure, however, would be rudely blocked in or when a finer sense of modelling was exhibited represented in a frozen attitude. It was indeed not until the fifth century before Christ that the Greek sculptors broke free from archaic tradition and realized the human body in action stimulated by the observation of naked Olympic athletes in action to an appreciation of the perfect human body never excelled since. But even for millenniums before the Egyptian far surpassed the crude picture postcard smile and ugliness of the archaic period in Greece.

The canon of proportions appears to have been nineteen times the new finger length. This in the adult is approximately four inches, which would give an average height of six feet four inches. This giantism they provided by lengthening the thighs mostly. The fact is that portraiture alone really interested them and any old thing sufficed when bodily proportions were considered.

Anatomy similarly interested them only as embalmers and they certainly knew how to extract the brain by a hook passed up through the nose and breaking through the ethmoid. With the conquest of Alexander and the Ptolemaic age the distinctive Egyptian features tend to become internationalized with the dominating influence of Greek and later Roman control. Whatever we may accept as the correct calculation of the chronology of these ancient dynasties, it is wonderful to consider that even in that vast sweep of the ages a period of history lay longer than the present succeeding era. Great medical personages took their share in building up knowledge and displaying the wisdom of the true physician for the benefit of their country and mankind.

CANCER MORTALITY.

By W. R. DAY,
Fellow of the Institute of Actuaries and Consulting Actuary of the Australian Metropolitan Life Office.

DISEASE of any kind is detrimental to the community. Some diseases are more detrimental than others, such as those which attack the more active workers and producers. Consequently it is not only necessary to know the cause and treatment of any disease but also its incidence. Cancer or more strictly carcinoma, is a disease which as a rule attacks persons of middle and old age, though cases in young persons and young children are not unknown.

The increase in the number of deaths from cancer, which statisticians have reported in recent years, has led to something in the nature of a public scare on the question without the production of evidence to warrant it. The mere facts that the number of deaths from cancer has increased and that the number of such deaths bears a larger proportion to the total deaths than formerly, of themselves prove nothing. Suppose for the sake of argument the community could be divided into two, those aged forty and over and those aged under forty. If separate statistics were compiled for each group, the deaths from cancer in the former group would

form a far larger proportion of the total than they would in the latter.

Consequently if in any community the proportion of middle aged and old persons to the total of the community is increasing, we may expect to find the number of deaths from cancer increasing, even if it were proved that the rate of mortality from cancer was diminishing. In other words the age question is of equal importance with the actual number of cancer deaths or the proportion which these bear to the total.

Admittedly other factors have to be taken into consideration. There has been much improvement in diagnosis, with the result that deaths are now certified as cancer which might formerly have been classified under other causes. This would tend to increase the number of cancer deaths. On the other hand the strides made in surgery have been such that cases formerly deemed incurable, are now being successfully dealt with. Even if the cures are not permanent and the patient again becomes affected by the disease, the chances are that life has been prolonged for several years. Statistics will not help us much in either of these cases at the present time.

But statistics will afford us a sure guide as to the ages of the population and as to the ages of those who die from cancer and it is from a study of these that we can deduce whether the rate of mortality from cancer has increased or diminished and the sections of the community in which the changes have occurred.

The last census of the Commonwealth took place on April 4, 1921, and the previous one on April 3, 1911. There are statistics of deaths for each year issued by the Registrars-General of each State. We have therefore material to enable us to decide what has been the variation in the cancer rate of mortality during those ten years. Both the census and the deaths figures are given separately for each sex.

Statistics to be of value must be ample with regard to numbers and must not be affected by any special circumstance. As an instance of the latter it may be pointed out that the general rate of mortality from influenza in Australia could not be fairly estimated by a reference to the year 1919 alone. The present investigation has been limited to the States of New South Wales and Victoria and they may be taken as a fair representation of the Commonwealth as a whole. The limitation has the effect of securing a more accurate registration of deaths (including their causes) owing to the greater density of the population, while the proportion of persons of "unspecified" ages is less in these two States.

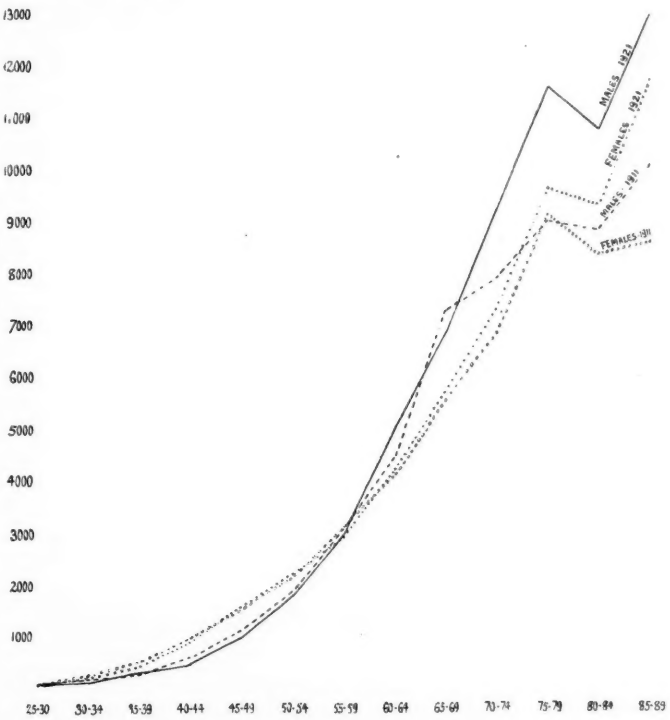
That the material is ample is shown in the following figures:

Populations in 1911 and 1921:

	1911	1921
Males	1,513,289 ..	1,826,225
Females	1,448,996 ..	1,805,426

Cancer deaths (average of four years):

	1911	1921
Males	1,217 ..	1,643
Females	1,134 ..	1,595



The average was obtained by taking one-fourth of the deaths between April 1, 1909, and March 31, 1923, and between April 1, 1919, and March 31, 1923.

The populations and the deaths are divided into quinquennial age groups in Table I (males) and Table II (females), the increase in each group *per centum* being also shown. It will be obvious that where the rate of increase in any population group is greater than the rate of increase in the corresponding group of deaths from cancer, the rate of mortality from cancer is diminishing, while the converse of the proposition is also true.

But the same result can be arrived at in a more simple manner by calculating the central death rate for each group per million and comparing the rates as between the two dates of 1911 and 1921. This is done by dividing the cancer deaths in any group by the population in that group and the results will be found in Graph I. It would be possible (and I have carried out the work for portions of each of the four sets of statistics) to construct a cancer mortality for each individual age. This is of little value except to show that the male and female rates

TABLE I.—POPULATION OF NEW SOUTH WALES AND VICTORIA ARRANGED IN AGE GROUPS AT THE TWO CENSUS PERIODS, 1911 AND 1921.

Males.

Age Groups.	Population.			Cancer Deaths.		
	1911.	1921.	Increase.	1911.	1921.	Increase.
			%			%
0 to 4	175,095	200,610	14·6	8·5	8·3	— 2·4
5 to 9	151,325	198,650	31·3	3·1	3·6	16·1
10 to 14	142,070	175,100	23·2	2·6	3·1	19·2
15 to 19	153,610	155,650	1·3	3·8	4·5	18·4
20 to 24	150,290	144,800	— 3·7	7·1	6·4	— 9·9
25 to 29	129,845	151,650	16·8	9·1	11·4	25·3
30 to 34	109,665	151,970	38·6	13·9	15·1	8·6
35 to 39	97,655	132,160	35·3	22·9	32·0	39·7
40 to 44	92,590	110,850	19·7	52·8	52·6	— 0·4
45 to 49	88,480	95,600	8·0	98·2	92·4	— 5·9
50 to 54	71,090	88,680	24·7	134·3	160·6	19·6
55 to 59	47,850	78,470	64·0	147·1	233·3	58·6
60 to 64	33,785	59,820	77·1	151·3	299·1	97·7
65 to 69	26,860	37,270	38·8	194·8	255·1	31·0
70 to 74	20,138	22,090	9·7	158·8	202·8	27·7
75 to 79	13,890	13,110	— 5·6	125·1	151·2	20·9
80 to 84	6,585	6,408	— 2·7	58·1	68·7	18·2
85 to 89	1,931	2,619	35·6	19·8	33·9	71·1
90 to 94	447	625	39·8	3·5	7·9	125·7
95 to 99	81	76	— 6·2	1·3	0·7	— 46·1
100	7	17	142·8	0·7	0·3	— 57·2
All ages	1,513,289	1,826,225	—	1216·8	1643·0	—

TABLE II.—POPULATION OF NEW SOUTH WALES AND VICTORIA ARRANGED IN AGE GROUPS AT THE TWO CENSUS PERIODS, 1911 AND 1921.

Females.

Age Groups.	Population.			Cancer Deaths.		
	1911.	1921.	Increase.	1911.	1921.	Increase.
			%			%
0 to 4	169,855	193,970	14·1	5·1	6·6	29·4
5 to 9	148,715	193,380	30·0	1·3	2·0	53·8
10 to 14	139,825	171,700	22·8	2·8	2·5	— 10·7
15 to 19	149,950	152,580	1·8	4·0	4·5	12·5
20 to 24	148,425	155,620	4·8	5·2	6·4	23·1
25 to 29	129,100	161,560	25·1	10·6	10·6	—
30 to 34	108,855	152,245	39·9	23·7	30·6	29·1
35 to 39	95,915	130,710	36·2	47·9	52·2	9·0
40 to 44	86,475	109,850	27·0	86·1	98·0	13·8
45 to 49	77,015	94,030	22·1	116·4	150·1	29·0
50 to 54	58,875	82,550	40·2	127·4	182·0	42·9
55 to 59	41,120	70,950	72·5	128·1	210·6	64·4
60 to 64	30,510	54,519	78·9	125·1	229·8	83·7
65 to 69	25,080	34,125	36·1	140·1	195·8	39·8
70 to 74	19,030	22,265	17·0	129·9	162·7	25·3
75 to 79	12,197	14,295	17·2	111·0	137·3	23·7
80 to 84	5,467	7,190	31·5	45·5	66·8	46·8
85 to 89	1,961	2,981	52·0	16·8	34·9	107·7
90 to 94	525	785	49·5	5·6	9·3	66·1
95 to 99	94	111	18·1	1·1	2·1	99·9
100	7	10	42·8	—	—	—
All ages	1,448,996	1,805,426	—	1,133·7	1,594·8	—

TABLE III.—CENTRAL DEATH RATES PER 1,000,000.

Age Groups.	Males.			Females.		
	1911.	1921.	Increase or Decrease.	1911.	1921.	Increase or Decrease.
			%			%
25 to 29	70	75	7·1	82	66	— 19·5
30 to 34	127	99	— 22·0	218	201	— 7·8
35 to 39	234	242	3·4	499	399	— 20·0
40 to 44	570	475	— 16·7	996	892	— 10·4
45 to 49	1,105	967	— 12·5	1,511	1,596	5·6
50 to 54	1,889	1,811	— 4·1	2,164	2,205	1·9
55 to 59	3,074	2,973	— 3·3	3,115	2,968	— 4·7
60 to 64	4,478	5,000	11·7	4,100	4,215	2·8
65 to 69	7,252	6,845	— 5·6	5,586	5,737	2·7
70 to 74	7,886	9,181	16·4	6,826	7,307	7·0
75 to 79	9,006	11,533	28·1	9,111	9,605	5·4
80 to 84	8,823	10,721	21·5	8,323	9,291	11·6
85 to 89	10,254	12,944	26·2	8,567	11,707	36·7
60 to 69	5,707	5,708	—	—	—	—

cross at age of fifty-seven. The female rate exceeds the male up to that age, but falls below it afterwards. The figures in Graph I, however, are quite sufficient to show how and where the rate has varied.

The curves of the percentage of increase or decrease will give us all the information we need. The figures are found by dividing the difference between the rates of 1911 and 1921 by the rate of 1911; we can now proceed to interpret them.

Taking the males first, it may be stated that the results are affected by two things in the groups 25 to 29, 30 to 34 and 35 to 39. These are the paucity in the number of deaths from cancer, especially in the first of the three groups and the disturbance of the populations in these groups by the war. In each of the groups the rate of increase in the group is less for the males than for the females when the populations at the two censuses are compared. For the ages 40 to 59 the central death rates show a decided improvement, though the percentage of improvement tends to diminish as the age increases. The next two groups, 60 to 64 and 65 to 69, are contradictory, the former showing an increase in the rate amounting to 11·7% and the latter a decrease of 5·6%. I am inclined to seek for an explanation in errors in age owing to ignorance of the deceased by the person giving the information. If, however, we combine the two groups into one, covering the ten years from 60 to 69, we get almost identical central death rates of 5,707 and 5,708. But it is in the four groups from 70 onwards that we find the solution of the problem. Here the rates have seriously increased beyond all doubt, the increases being 16·4, 28·1, 21·5 and 26·2. But the last may be questioned on account of the paucity of data.

Turning now to the females, we find a well marked diminution in the rate up to age 44. The increase during the period of change of life is a disquieting feature and cancer research workers should bear it in mind. There is a fall in the rate for group 55 to 59 followed by rises in the two 60 groups. There is a marked rise in the rate after 70, but it is not so marked as in the males, if we except the final group 85 to 89 and question that on the grounds of paucity of data.

It is interesting to note that there is a fall in the central death rates for age group 80 to 84 when compared with that of 75 to 79. We might ignore it if it only occurred in one of the tables, but it is worth noting when it is found to occur in all four.

To sum up the whole position as disclosed by these figures, there has been no increase in the death rate for males up to age seventy, but after that the increase is considerable. For females there is a noticeable increase during the change of life period, with a small increase after age sixty. Hence we can judge of the success attained by the cancer enemy in ten years and to some extent the damage thereby inflicted on the community. For my own part I fail to see cause for alarm except in the exaggerated statements of those ignorant of the facts of the case.

CANCER TREATMENT FROM THE MEDICAL ASPECT.[1]

By N. W. MARKWELL, M.B., Ch.M. (Sydney),
Honorary Physician to Out-Patients, Brisbane General Hospital, Queensland.

IT is only a few years ago that we took for granted a hopeless attitude towards the treatment of cancer. Malignant disease was looked upon as an inevitable evil which, after being diagnosed as early as possible, had to be eradicated by surgical means immediately if not too late. The position today is still surgical and partly radiological, whilst the medical side is concerned either with diagnosis in the early stages or alleviation of suffering in the late stages. Medicine is a Cinderella in the background. A great change has occurred in our outlook in recent years. We are now hoping that medicine will take an important part in the actual cure of cancer. There are indications that it will be an important adjuvant to surgery in the very near future.

Two possibilities have been presented to us with regard to the medical treatment of cancer, first, preventive treatment by serum or other means and secondly, eradication of a growth by a poison which has a definite destructive affinity for neoplasia. The first seems still doubtful, but there is promise in the second method.

The best treatment of a disease is its prevention. To prevent a disease we must know its cause. But we do not know the cause of cancer yet. Most of us believe that chronic irritation may produce cancer, but we do not know how. If the mechanism which causes cancer resides wholly within the body, the outlook seems comparatively gloomy so far as prevention is concerned. We can taboo only a few kinds of irritation. Maude Slye has scientifically bred mice at will on the one hand quite resistant to cancer and on the other hand so prone to it that the ordinary stress of intrauterine life produces cancer by the time the mouse is born. But her methods could hardly be applied to the human race even by the most ardent eugenist. However, if it be that irritation provides a portal for the admission of some noxious agent which incites malignant changes in the cell, the outlook would be full of hope. We cannot prevent inevitable decay, but we can fight a foreign organism. Gye believes that there are two factors in causation, a microorganism and a diminished resistance. However, some of Gye's work could not be confirmed by others. So prevention of cancer is but still visionary and even more so is a cure by bacteriological methods. At the present day the more hopeful line of attack is how to arrest cancer rather than how to prevent it.

Spontaneous resolution is reported by sound authorities, but this is so rare that it is never considered in practice when arriving at a prognosis. Nevertheless research workers have gained clues for

[1] Read at a meeting of the Queensland Branch of the British Medical Association on August 16, 1927.

possible lines of treatment by investigating such cases. Thus encouraged, they have found that there are various substances which appear to act as protoplasmic poisons with particular destructive effect on the nuclear material of the malignant cell. The best known of these are colloidal lead and Coley's fluid.

W. B. Coley published his treatment for sarcoma with a serum consisting of the mixed toxins of the streptococcus of erysipelas and of the *Bacillus prodigiosus* in the *Annals of Surgery* as far back as 1891. It was suggested by the fact that certain malignant tumours which had been partially removed by operation were observed to be at least temporarily inhibited after accidental inoculation with erysipelas. Papers on this therapeutic agent have been more numerous recently in America and it is possibly a matter for regret that Coley's fluid has not been more tried in this country. A useful account of this treatment is given in this year's "Medical Annual." It seems that patients with inoperable malignant disease, at any rate those with sarcoma, should be given the benefit of a trial with this fluid for six weeks. It is a matter for the surgeons to state whether it should be given after all operations on sarcoma, especially of bones. Coley states in a recent paper that he has had only three deaths directly due to the treatment out of more than a thousand cases, whilst he claims success in about 10% of inoperable cases.

Professor Blair Bell, of Liverpool, found that in the great lead works in that town men and women often became more or less sterile, that pregnant women apparently were subjected to abnormal risks of miscarriage and that in sufferers from advanced cancer who were compelled by the exigencies of life to carry on in this work, there was at times a surprising reduction in the severity of the cancerous process. With this clue Blair Bell postulated an hypothesis concerning the nature and cure of malignant neoplasia as long ago as 1908. First, he regards cancer to be of the same nature as primitive growth processes, and secondly, he thinks that lead has a specific arresting action on all growth processes. He states that in the development of the embryo the trophoblast—the earliest functioning cells—must eat its way into the maternal tissues in order that the ovum may survive. He postulates that every cell in the body has a potentiality of atavistic reversion to the nourishment-providing proclivities normally possessed in a specific degree by the cells of the growing chorionic epithelium and that this reversion may come about if a cell slowly loses its power of either obtaining or utilizing nutriment, that is to say if a cell through metabolic stagnation slowly starves. Extensive work has been performed by the Liverpool team of research workers in support of this hypothesis, morphological, physiological, chemical and above all toxicological. The toxicological resemblance of the cancer cell to the chorionic cell, hinted at by the experience of the lead workers, seems to have been confirmed in the laboratory. The specific action of the lead also seems to be shown by some patients who died as a result of treatment with colloidal lead injections.

For example, a young man had diffuse sarcoma of the stomach proved by laparotomy and histological section. He died from acute peritonitis after intravenous lead injections. No stomach could be found at the *post mortem* examination, but simply a mush of dead tissue. The stomach had become totally liquefied.

The specific action is also witnessed by the occurrence of local reaction and pain at the site of the growth two to eight hours after the injection.

The most important result of the Liverpool work is the production of a lead preparation which, though far from perfect, has already cured patients with inoperable tumours who would have otherwise inevitably died soon. Fortunately the first patient experimented upon was not one of those who died as a result of the treatment. Writing about this case at the end of 1925, Blair Bell states:

On November the ninth, nineteen twenty—five years ago yesterday—a woman was admitted to my maternity ward at the Royal Infirmary, Liverpool, for her confinement, which took place a few days later. She was suffering with an extensive ulcerated carcinoma of the left breast with glands in the axilla. Operation had been considered useless six months previously by two of my surgical colleagues. The growth had been accelerated during pregnancy as is usual in these circumstances. I was looking for just such a hopeless case. A section was prepared from a piece of tissue adjacent to the ulcerated area and intravenous injections of lead were given. Not only is the patient well today, five years and one day later, but she has had two more babies in the interval, both of whom she has suckled at the breast that was affected.

The well-known panegyric on the Liverpool lead treatment by such an authority as Professor Adami leaves us no alternative but to believe. Unfortunately "S7"—the slightly hypertonic colloid suspension containing 0·5% of lead used at Liverpool—cannot be used except in a special clinic with a highly trained staff. Experience has shown that the lead must be pushed to the limits of tolerance. Some people, for example those with damaged kidneys, cannot reach these limits, so that exhaustive blood and kidney tests must be performed not only on each patient, but also before each lead injection. It has been mentioned before that the lead injections may cause massive necrosis of the tumour with fatal results. The excretory apparatus of the patient must be healthy to deal with the resultant circulating toxins. Moreover, to cut the latter down to a minimum it is necessary to excise as much of the cancerous process as possible a few days before the first lead injection. Lastly and of great importance, "S7"—the only reliable preparation yet obtained—must be made just before the injection is given. Nevertheless, the treatment seems to have reached a stage when, first, all patients with inoperable tumours should have the opportunity of a trial and secondly, if there be no contraindication to its use, it is possible that it should be given as a prophylactic against recurrence in all cases after operation for malignant disease. Blair Bell's first two hundred and seven patients, all with inoperable tumours, had the following fate: Fifty or 24% died before treatment could be completed, three died of intercurrent affections, one

hundred and six or 52% died after treatment, two deaths being due to acute nephritis as a result of lead poisoning, four died as a result of extensive destruction of the growth by lead, fourteen had been treated too recently to justify estimation of the result, nine refused the complete treatment but were leading normal lives, thirty-one or 15% were believed cured and the treatment was stopped, whilst the disease was completely arrested in ten or 5%. Even if the treatment only promised arrest of inoperable cancer in 5%, it would be worth founding clinics in every important city. But the above figures surely promise even more than this, especially when we consider that these were the first patients treated and that the conditions were necessarily very advanced.

A movement is on foot to stimulate cancer research in this city. The only cancer research with practical results to date is Blair Bell's. I would suggest that any money that be raised be used in founding and maintaining a cancer clinic on the above lines. The first step is to obtain the money. The second step is to satisfy Professor Blair Bell—it is to be remembered that he was working at the problem for thirteen years before treating his first human patient—that a properly equipped and properly staffed cancer clinic will be maintained. The third step is to obtain the right pathologist to send to Liverpool to be properly trained in the methods there.

CANCER TREATMENT FROM THE SURGICAL ASPECT.[1]

By ALAN E. LEE, M.D. (Melb.), F.R.C.S. (Eng.),
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THE choice of this subject of cancer treatment for our discussion tonight is an indication of the reawakened interest in this disease throughout the world at the present time.

This increase of interest is undoubtedly due to the fact that, whereas many of the great killing diseases of the past centuries are now under firm control, the mortality of cancer appears to be increasing by leaps and bounds and alarm is felt that no means of checking this increase seems to have been devised.

How real this increase in cancer mortality is can be realized from the following figures: One hundred years ago the death rate from cancer in England was 6‰ deaths to which figure it had increased from 3‰ a century earlier. Today it is approximately 130‰.

According to the statistician of the Metropolitan Life Insurance Company, the death rate from cancer amongst their insured persons has increased since 1910 by 47·3% in the case of males and by more than 21% in the case of females. Of those who are thirty years of age, whereas in 1910, 6% might expect to die of cancer today almost 10% must expect that fate.

This rapid increase in recent years would suggest that there may be some defect in our civilized habits causing this increase and many books by both lay and medical authors have recently appeared setting forth that better habit of life which will result in the abolition of malignant disease.

Reasons for Increased Prevalence.

If the causation of this increase were known, it might well throw some light on the treatment of the disease, so it is desirable to review briefly the reasons advanced by various authorities for its modern prevalence.

Better Diagnosis.

First, in regard to better diagnosis. This to us moderns attractive explanation seems to be regarded as only a very minor factor by most authorities. In favour of its importance is the fact that in certain countries where medicine is on a high plane, cancer mortality has been high for many years and is not increasing. For example, in Switzerland where a large proportion of the total death certificates is based on autopsy results, the cancer mortality is the highest in the world, 130‰ and has been at this figure for the last thirty years.

Another fact in its favour is that the major increase in cancer in Anglo-Saxon countries has been in relation to the stomach, a notoriously difficult site, but, we trust, one in which the diagnosis has notably improved of recent years.

Minimizing its importance are the following facts.

Humiliating as it may seem, the available statistical evidence does not support the view that the diagnosis of late cancer is improving.

Thus in Heidelberg the clinical cause of death and the autopsy findings were compared over a period of fifty years with the following illuminating results: Fifty years ago 70% of the deaths from cancer were correctly diagnosed; today 69%.

Better diagnosis has always been a stock argument to explain an increased mortality and was used one hundred years ago to explain the increase in England from 3‰ to 6‰ deaths. Even at that time it was regarded as a rather feeble argument.

Finally, the obvious cancers such as of skin and oral cavity, are increasing and it is probable that these have always been well recognized.

Increasing Expectation of Life.

Secondly, the increasing expectation of life. All recent writers agree that this is a very important factor indeed.

The improved conditions of living in all civilized countries and the widespread disposal of sewage by water carriage, together with the successful crusades against tuberculosis and infantile diseases, have wrought amazing changes in the direction of lengthening life. Whereas fifty years ago a baby's expectation of life was thirty-eight years, it is now fifty-four years. For every one hundred persons alive at sixty-five years of age only forty years ago, there are now two hundred and fourteen.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on August 16, 1927.

Even in the last fifteen years, the number of persons reaching fifty years of age has increased by 17%.

The importance of these figures is obvious. Cancer is preeminently a disease of the fourth and later decades. In the past many people died before reaching these decades, but now every year more and more persons are living into and well into those years in which cancer might be expected to develope.

Sir James Paget once remarked that "if he only lived long enough, every person would die of cancer." This statement is probably not true, but if amended to "if he only lived long enough, every hereditarily susceptible person would die of cancer," it probably is true and reveals the great importance of this factor of longer expectation of life.

Expert statistical opinion, however, can only regard this factor as a partial explanation of the increase.

Under-Exercise and Over-Nutrition.

There is much suggestive evidence of the importance of under-exercise and over-nutrition in modern life in the causation of the cancer increase. And they are new factors, for in spite of pious references to "the good old times" it appears that these same good old times were both hungry and laborious ones for all but an insignificant section of our European populations. It is only within living memory that whole populations can be said to have been adequately nourished and not subjected to persistent overwork.

When cancer mortality statistics are analysed according to occupations, it is consistently found that it is in the hard laborious manual trades that the figures are low, while the highest figures are found amongst the members of the learned professions and other non-manual workers.

Similarly the incidence in tropical countries is low compared with that of colder lands. To explain these facts an hypothesis has been put forward that the increased incidence of cancer is bound up with increasing disuse of the sweat glands. This explanation seems hardly credible except in the case of some skin cancers.

A more attractive theory suggests that it is the general lymphatic stasis accompanying under-exercise that is the important factor. As I shall point out later, local stasis may well be the important preexisting factor in breast cancer and by a wider application other cancers may well be predisposed to by a prolonged condition of lymphatic stasis. As Mr. Sampson Handley said recently: "It is quite possible that the Ford car is not so cheap as it appears and that part of its price is some portion of the present increase of cancer."

Precancerous Conditions.

Lastly, certain known precancerous conditions are more common today than they have previously been. In this statement we have an important ætiological factor that can be applied to treatment.

One may accept the overwhelming experimental evidence as to the influence of heredity and still see that the hereditary tendency is not the disease itself but that the usual exciting factors must be brought into play and that even in hereditarily predisposed subjects these preventible factors may be successfully excluded.

A rational basis for the prevention of cancer lies in the fact that the major forms of this disease are due to some form of chronic irritation. All types of chronic infection and irritation should therefore be scrutinized carefully for their possible relation to cancer.

Probably the most authoritative statement on this subject that has ever been published was the recent one of James Ewing[1] and this has been followed in the paragraphs below.

In regard to the intraoral group, Ewing considers that cancer of lip, tongue, floor of mouth and tonsil are due to bad teeth, tobacco and syphilis in that order. This important first factor of decayed teeth and infected peridental membranes is probably more common today than ever before. Ewing states positively that if these factors could be abolished, oral cancer would be abolished.

The obvious treatment is good dental attention, non-abuse of tobacco, treatment of syphilis and Ewing is very keen on the regular use of a soap gargle.

Cancer of the external genitals is nearly always due to uncleanliness. Cancer of the penis has never been seen in a circumcised person.

In skin cancer, predisposing factors are congenital pigmented moles, suppressed hair follicles, over development of sweat and sebaceous glands and special sensitivity to wind and sunlight. To these must be added the factor of chronic irritation, so it is safe to say that if any of these precancerous conditions are present, they should either be specially protected from irritation or better removed.

Cancer of the *cervix uteri* is nearly always grafted on a neglected laceration or a long continued endocervicitis. Treatment is obvious.

About 5% to 10% of gastric cancers are grafted on previously existing ulcers, therefore chronic gastric ulcers, when found, should be excised. In a large proportion of the remainder, a history of habitual abuse of the stomach is given, usually either of the bolting of hot, irritating meals or the persistent overfilling of the stomach with solids or fluids.

Stagnation in the mammay ducts is an extremely potent factor in mammary cancer. Thus Bagg, by withdrawing the young at birth from female mice, produced 85% of fatal breast cancers by the time the third or fourth litter had been withdrawn. Stagnation has been investigated in the human subject and of two hundred patients with mammary cancer only eight gave a history of approximately normal lactation. As Ewing says: "We have thus clinical, anatomical and experimental data indicating that stagnation of secretions is a prime factor in the causation of chronic mastitis and cancer."

In the control of cancer early diagnosis alone is not capable of accomplishing the desired reduction

in the death rate. Many cancers are inoperable from their first recognizable beginnings.

Any plan for control thus leans heavily upon cancer prevention and a consideration of the variety of factors enumerated above will reveal the possibilities in this regard.

Principles of Surgical Treatment.

In the surgical extirpation of cancer no matter in what portion of the body it is situated, there are certain general principles of treatment that one should attempt to apply.

For a successful result there are three special requirements: (i) That the cancer should be completely removed, (ii) that none of it should be reimplanted upon the fresh wound surface, (iii) that no cancer emboli should be pressed into the blood or lymph streams during the operation.

Complete Removal.

In regard to this first requirement, that the cancer should be completely removed. The limits of a cancerous growth are not visible to the naked eye and therefore such a removal should be planned as experience has shown is necessary for non-recurrence. This in all cases requires the removal of the growth together with its complete lymphatic drainage area, that is, in one solid mass, the organ containing the growth, the lymph glands into which that organ drains and all the tissues in which lymphatics may run between them.

Only three reasons can be held to justify limiting this degree of removal: (i) That it would involve removal of some vital structure, (ii) that the mortality of such an operation be prohibitive, (iii) that it can be repeatedly shown that in the case of any particular organ such a removal is not necessary.

What I mean by limitation owing to excessive mortality can be well shown in the case of rectal carcinoma. The only operation fulfilling the ideal requirements is Miles's abdomino-perineal resection which gives 50% to 60% five year cures. A less radical procedure, Lockhart Mummery's perineal resection, gives about 20% five year cures. Now the mortality of Mummery's operation is about 5% while Miles's operation has a mortality of 40% to 60% in the case of males and about 4% to 5% in the case of females. I would therefore say that the complete abdomino-perineal operation is not justifiable in males but should be performed in females.

Every cancer operation will have two separate parts, the first relating to the removal of the growth and the second dealing with the problems of the repair of the damage thus produced. Consideration of the repair problem must never limit the scope of the extirpation and there is much to be said for (I think it was Halsted's) procedure. He removed the growth himself, concentrating on that alone and then retired, leaving a second surgeon to repair the damage as best he could.

The operation then in cancer surgery can be said to consist essentially in an anatomical dissection, involving the block removal of the organ and its complete lymphatic field.

No Reimplantation.

In regard to the second factor, that none of the cancer should be reimplanted upon the fresh wound surface, in exposed cancers this is doubtless one of the most prolific causes of recurrence. Thus in cancer of the cervix certain vaginal forms of hysterectomy which in no way fulfill the requirements as to width of removal, yet produce surprising numbers of cures owing no doubt to the excellent control that can be so exercised over this problem of wound infection. Such an operation I saw performed in Vienna by Amreich who was obtaining 20% of five year cures with an operative mortality of 2%. It is practically the same operation as is beautifully illustrated in Pauchet's "Operative Surgery" under the name of Faure's operation.

In deep cancer wound infection is best guarded against by a block dissection in which the knife at no time crosses any cancer infected planes. If such a plane is crossed, the infected instruments should be reboiled and the exposed tissue cauterized or treated with alcohol packs.

Avoidance of Emboli.

The third requirement, that no cancer emboli should be pressed into the blood or lymph streams during the operation, is best met by gentle handling of the affected organ both before and during operation and especially by commencing the operative removal at the periphery, securing the large veins early and dissecting the lymphatics before the tumour itself is attacked.

If an operation is to be divided into two stages, the possibility of emboli occurring between operations will be prevented by removing the tumour at a first stage and the lymphatic field at a later operation.

Palliative Measures.

If at operation or even before it is discovered that a malignant growth is inoperable in the sense that a permanent cure is not possible, many surgeons feel that their responsibility to the patient is then discharged. There are, however, many ways in which a surgeon can make the patient's remaining days more comfortable. Amongst these palliative procedures I would mention: (i) Nerve sections for the elimination of intolerable pain, (ii) procedures to relieve visceral obstructions.

Most of the symptoms of visceral cancer are mechanical in origin and even though the growth is not completely removable or secondary growths are present in the liver, procedures to relieve these mechanical symptoms may cause an enormous change in the patient's outlook on life. In this connexion I would mention intubation or gastrostomy for the relief of œsophageal cancer, gastrojejunostomy or partial gastrectomy for pyloric cancer and colostomy for cancer of the large intestine. In many other cases even partial removal or coagulation by surgical diathermy reduces pain and discharge, prolongs life and makes the patient's ultimate end far less miserable. Granted we are only putting off the evil day, but, as someone has said, what is better to do with an evil day than to put it off.

Reference.

[1] Cancer Symposium Supplement,[1] *Surgery, Gynecology and Obstetrics*, May, 1918.

ON THE MORE EXTENSIVE USE OF THE UREA CONCENTRATION TESTS.[2]

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GRADWOHL AND BLAIVAS[(1)] predict that the surgeon of the future must estimate the preoperative condition of his patient not only by clinical methods, but also by elaborate inquiries into his blood chemistry. Even should such a stand be not generally adopted, there remains the large field of prostatic surgery and renal medicine in which some estimation of the renal function must be of assistance in indicating the way to treatment and prognosis. The urea concentration test of Maclean in surgical conditions and the range of function test of Calvert[(2)] in medical conditions demand critical attention. Both these tests require the estimation of urea in the urine, an estimation usually carried out soon after the urine is passed.

In Australia the vagaries of train and post service may mean that a practitioner cannot send a specimen to a laboratory under three or four days. In these circumstances the risk of contamination by urea-reducing organisms which have been shown to exist in air, water and soil[(3)] must be considered and the elaboration of a method which will avoid such risk and yet will not of itself alter the percentage of urea in the specimen, will doubtless help many practitioners in this difficulty. A series of experiments has therefore been undertaken with a view to determining how long the percentage of urea in a specimen of urine will remain constant and whether certain easily applied methods will help.

Method.

In all the urea estimations the hypobromite method[(4)] has been used. This method is easy and rapid and the figures given by it in these experiments did not show great variation. Each estimation was carried out in duplicate and the average was taken of the two readings. The cultures of *Bacillus coli communis* and *Staphylococcus albus* used were standard cultures obtained from the Royal Park laboratories. The culture of *Bacillus aerogenes* was a strain isolated at this laboratory from a specimen of stool.

Collection of Specimens.

The specimens used were twenty-four-hour specimens collected at the Lismore District Hospital. The patient chosen was a convalescent whose urine was free from albumin and sugar, and he was asked to pass the urine into a sterile bottle. No other precautions were taken to avoid contamination. Separate specimens were obtained for each of the three groups mentioned below.

Experiments.

The estimations were carried out in three groups.
Group I included series A, B, C, D, E, F, G, H and J.
Group II included series K, L, M, N, O and P.
Group III included series Q and R.

Series A.

The urine was pipetted into a sterile flask, plugged with sterile cotton wool and the percentage of urea was estimated daily.

On the first day the percentage was	2·49
On the second day the percentage was ..	2·49
On the third day the percentage was	2·52
On the fourth day the percentage was ..	2·54
On the fifth day the percentage was	2·51
On the sixth day the percentage was	2·43
On the eighth day the percentage was ..	2·46
On the ninth day the percentage was ..	2·42
On the tenth day the percentage was	2·36
On the eleventh day the percentage was ..	2·28
On the twelfth day the percentage was ..	2·20

After the first few days the specimen became distinctly ammoniacal. This was due to bacterial infection. The vapourization of this ammonia by the heat, caused by the reaction of the urea and the hypobromite, may thus account for the rise in the figures.

Series B.

The urine was brought to the boil in a sterile flask, care being taken to avoid undue evaporation and the flask was then plugged with sterile cotton wool. It will be noticed that boiling the urine does not appreciably alter the percentage of urea.

On the first day the percentage was	2·49
On the second day the percentage was ..	2·49
On the third day the percentage was	2·53
On the fourth day the percentage was ..	2·53
On the fifth day the percentage was	2·54
On the sixth day the percentage was	2·49
On the eighth day the percentage was ..	2·49
On the ninth day the percentage was	2·48
On the tenth day the percentage was ..	2·49
On the eleventh day the percentage was ..	2·43
On the twelfth day the percentage was ..	2·38

Series C.

The urine was pipetted into a sterile flask, a 1% solution of chloroform was added and the flask was plugged with sterile wool.

On the second day the percentage was ..	2·59
On the third day the percentage was	2·57
On the fourth day the percentage was ..	2·54
On the fifth day the percentage was	2·52
On the sixth day the percentage was ..	2·49
On the eighth day the percentage was ..	2·48
On the ninth day the percentage was ..	2·48
On the tenth day the percentage was ..	2·49
On the eleventh day the percentage was ..	2·45
On the twelfth day the percentage was ..	2·44

[1] The author is indebted to this source for many of the statements in his article.
[2] Read at a meeting of the North-eastern Medical Association, New South Wales, on August 24, 1927.

The excess of chloroform present in the first few specimens was evaporated by the heat of the reaction and caused high readings. The chloroform vapour could be detected by smell in the gas evolved during these first estimations. The chloroform slowly evaporated.

Series D.

The specimen was inoculated with *Bacillus coli communis* culture.

On the second day the percentage was	2·50
On the third day the percentage was	2·53
On the fourth day the percentage was	2·51
On the fifth day the percentage was	2·51
On the sixth day the percentage was	2·46
On the eighth day the percentage was	2·45
On the ninth day the percentage was	2·44
On the tenth day the percentage was	2·39
On the eleventh day the percentage was	2·30
On the twelfth day the percentage was	2·24

Series E.

The specimen was inoculated with *Bacillus aerogenes* culture.

On the second day the percentage was	2·50
On the third day the percentage was	2·54
On the fourth day the percentage was	2·51
On the fifth day the percentage was	2·51
On the sixth day the percentage was	2·43
On the eighth day the percentage was	2·43
On the ninth day the percentage was	2·42
On the tenth day the percentage was	2·36
On the eleventh day the percentage was	2·29
On the twelfth day the percentage was	2·24

Series F.

The specimen was inoculated with *Bacillus coli* and then brought to the boil.

On the second day the percentage was	2·51
On the third day the percentage was	2·52
On the fourth day the percentage was	2·51
On the fifth day the percentage was	2·51
On the sixth day the percentage was	2·49
On the eighth day the percentage was	2·46
On the ninth day the percentage was	2·48
On the tenth day the percentage was	2·49
On the eleventh day the percentage was	2·47
On the twelfth day the percentage was	2·47

Series G.

The specimen was inoculated with *Bacillus aerogenes* and then brought to the boil.

On the second day the percentage was	2·51
On the third day the percentage was	2·53
On the fourth day the percentage was	2·51
On the fifth day the percentage was	2·51
On the sixth day the percentage was	2·49
On the eighth day the percentage was	2·49
On the ninth day the percentage was	2·48
On the tenth day the percentage was	2·49
On the eleventh day the percentage was	2·49
On the twelfth day the percentage was	2·49

Series H.

The specimen was inoculated with *Bacillus coli* and 1% chloroform was added.

On the second day the percentage was	2·60
On the third day the percentage was	2·63
On the fourth day the percentage was	2·62
On the fifth day the percentage was	2·55
On the sixth day the percentage was	2·51
On the eighth day the percentage was	2·49
On the ninth day the percentage was	2·49
On the tenth day the percentage was	2·50
On the eleventh day the percentage was	2·49
On the twelfth day the percentgae was	2·49

Series J.

The specimen was inoculated with *Bacillus aerogenes* and 1% chloroform was added.

On the second day the percentage was	2·61
On the third day the percentage was	2·64
On the fourth day the percentage was	2·62
On the fifth day the percentage was	2·57
On the sixth day the percentage was	2·51
On the eighth day the percentage was	2·49
On the ninth day the percentage was	2·49
On the tenth day the percentage was	2·50
On the eleventh day the percentage was	2·49
On the twelfth day the percentage was	2·49

Series K.

The same procedure was adopted as in Series A.

On the first day the percentage was	2·10
On the second day the percentage was	2·09
On the third day the percentage was	2·10
On the fourth day the percentage was	2·09
On the fifth day the percentage was	2·07
On the sixth day the percentage was	2·08
On the eighth day the percentage was	2·03
On the ninth day the percentage was	2·03
On the tenth day the percentage was	2·03
On the fourteenth day the percentage was	1·73

Series L.

The specimen was inoculated with a culture of *Staphylococcus albus.*

On the second day the percentage was	2·12
On the third day the percentage was	2·14
On the fourth day the percentage was	2·14
On the fifth day the percentage was	2·15
On the sixth day the percentage was	2·15
On the eighth day the percentage was	2·15
On the ninth day the percentage was	2·15
On the tenth day the percentage was	2·15
On the fourteenth day the percentage was	2·15

Series M.

The specimen was inoculated with a culture of *Staphylococcus albus* and then brought to the boil.

On the second day the percentage was	2·09
On the third day the percentage was	2·10
On the fourth day the percentage was	2·10
On the fifth day the percentage was	2·10
On the sixth day the percentage was	2·10
On the eighth day the percentage was	2·10
On the ninth day the percentage was	2·11
On the tenth day the percentage was	2·11
On the fourteenth day the percentage was	2·11

Series N.

The specimen was inoculated with a culture of *Staphylococcus albus* and a 1% solution of chloroform was added.

On the second day the percentage was .. 2·26
On the third day the percentage was .. .. 2·25
On the fourth day the percentage was .. 2·21
On the fifth day the percentage was .. .. 2·17
On the sixth day the percentage was .. 2·13
On the eighth day the percentage was .. 2·09
On the ninth day the percentage was .. 2·09
On the tenth day the percentage was .. 2·09
On the fourteenth day the percentage was 2·09

Series O.

The specimen was pipetted into a sterile flask, a 1% solution of chloroform was added and the flask was corked with a sterile rubber stopper.

On the first day the percentage was .. .. 2·32
On the third day the percentage was .. .. 2·29
On the sixth day the percentage was .. 2·23
On the fourteenth day the percentage was 2·18

Series P.

In Series C it was noted that the chloroform was evaporated by the heat of the reaction and disturbed the results. An attempt was made to avoid this by heating the specimen before estimating the urea. Ten cubic centimetres of the specimen were pipetted into a beaker and placed in the incubator at 37° C. for two hours.

On the first day the percentage was .. .. 2·15
On the third day the percentage was .. .. 2·18
On the sixth day the percentage was .. 2·21
On the fourteenth day the percentage was 2·11

In the fourth estimation which was carried out on the fourteenth day, the specimen was heated in the incubator for one hour only. In these estimations chloroform vapour could not be detected in the gas evolved. It was thought therefore that evaporation in the incubator would cause sufficient concentration of the specimen to give high readings. Two more series were then undertaken to attempt to avoid the errors of Series P. Twenty cubic centimetres of urine were taken for heating instead of ten cubic centimetres. The specimens were heated for intervals of half hour, one hour, one and a half hour in the incubator and were shaken every ten minutes. A large open vessel of water was placed in the incubator to saturate the air with vapour.

Series Q.

The initial percentage of urea was 2·61. The urine was placed in a flask and 1% chloroform was added. The flask was stoppered and well shaken. Four lots of twenty cubic centimetres were drawn off.

Before heating the percentage was .. .. 2·94
After half an hour the percentage was .. 2·69
After one hour the percentage was .. .. 2·69
After one and a half hour the percentage was .. .. 2·69

Series R.

The four estimations in Series Q were repeated six days later.

Before heating the percentage was .. .. 2·83
After half an hour the percentage was .. 2·62.
After one hour the percentage was .. .. 2·63
After one and a half hour the percentage was .. .. 2·64

It will be seen that one half to one hour in the incubator is sufficient if the specimen be well shaken at ten minute intervals.

Conclusions.

A reasonably accurate estimate of the percentage of urea in urine may be made after several days provided infection of the specimen is avoided.

The specimen may be placed in a sterile bottle with 1% chloroform and stoppered tightly with a sterile stopper. In estimating these specimens the chloroform must first be evaporated.

The specimen may be brought to the boil (care being taken to avoid undue evaporation) and then placed in a sterile bottle and tightly stoppered with a sterile stopper.

Acknowledgments.

My thanks are due to my assistant, Mr. Barrett, for his help in the chemical estimations.

References.

(1) Gradwohl and Blaivas: "The Newer Methods of Blood and Urine Chemistry," Second Edition, Chapter XXX.

(2) Calvert: "Diagnosis and Prognosis in Chronic Renal Disease: The Range of Urea Concentration or the Range of Function Test," *The British Medical Journal*, January 10, 1925, page 64.

(3) Mace: "*Traite Pratique de Bacteriologie*," Sixth Edition, Volume I, page 589; Volume II, page 526.

(4) Cole: "Practical Physiological Chemistry," Sixth Edition, page 336.

Reports of Cases.

LIVER FEEDING IN SIX CASES OF PERNICIOUS ANÆMIA.[1]

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IN July, 1927, I commenced liver feeding in pernicious anæmia on the lines laid down by Minot and Murphy(1) in America.

The results in the treatment of five patients under my care in Sydney Hospital and in one patient treated on similar lines by Dr. Adams in Sydney Hospital are here given. As they are similar to those claimed by Minot and Murphy and also to those of Professor Elliot,(2) recently published in THE MEDICAL JOURNAL OF AUSTRALIA, I think they are of sufficient interest to warrant publication.

The treatment is mainly dietary and based on that of Minot and Murphy as published in *The Journal of the American Medical Association.*

The diet is as follows and with minor variations was taken by all six patients. Some received hydrochloric acid and an iron and arsenic mixture in addition and some hydrochloric acid alone; but, as emphasised by the American observers, the latter measures are subsidiary. The diet is set out in the accompanying table.

[1] The patients described herein were shown at a meeting of the Sydney Hospital Clinical Society on November 2, 1927.

TABLE I.—SHOWING THE DIET USED.

Breakfast.		Dinner.		Tea.	
Liver	4 ounces	Beef or mutton	4 ounces	Tomato	4 ounces
Spinach or cabbage	4 ounces	Spinach or cabbage	4 ounces	Fruit	6 ounces
Bread	1 ounce	Fruit[1]	6 ounces	Bread	1 ounce
Porridge	6 ounces	Potato	4 ounces	Liver	4 ounces
Milk	6 ounces	Butter	½ ounce	Butter	½ ounce
Butter	½ ounce			Milk	2 ounces

[1] The fruit taken was mainly oranges.

The liver is cooked in slices in butter for five to ten minutes. Salt is not used in cooking as this hardens the liver and it is served with salt and pepper. Calf's liver preferably is used. When the teeth are defective, the liver is minced or it may be given raw, pulped and mixed with orange juice. Briefly the diet consists of 180 to 240 grammes (six to eight ounces) of liver (cooked weight) in the day, with a generous addition of red meat, fruit (preferably oranges) and leafy vegetables. Carbohydrates in concentrated form are to be avoided.

All six patients have taken the diet readily, although it is reported that some patients have an aversion to the diet. This in severe cases may be overcome, it is suggested, by feeding with the stomach tube.

CASE I.—G.M., a male, aged sixty-one, was admitted on July 19, 1927 and discharged on October 12, 1927. He had previously been in hospital under my care from January 15, 1927, to April 4, 1927, when his blood count rose from 1,700,000 cells per cubic millimetre with a hæmoglobin value of 42% on admission, to 2,500,000 and a hæmoglobin value of 68% on discharge. He was then treated with hydrochloric acid, arsenic and transfusions.

His progress during his last period in hospital is shown in Table II.

This patient was previously in hospital under me for three months earlier this year. He was then treated on lines laid down by Hurst and Bell,[3] that is, with hydrochloric acid and arsenic and transfusions. Improvement was slow and in that time his erythrocytes had risen only from 1,700,000 to 2,500,000.

On the liver diet his erythrocytes rose from 1,140,000 to 4,300,000 per cubic millimetre in two months.

CASE II.—J. MacD., male, aged fifty-nine years, was admitted on May 12, 1927, and discharged on September 15, 1927. His progress is depicted in Table III.

This patient was seriously ill and in addition to hydrochloric acid and an iron and arsenic mixture, had two transfusions. His condition improved, but he relapsed and on date of commencing the liver diet it will be noted that his erythrocytes had fallen in number. Two months later the erythrocytes had risen to 4,220,000. He was still taking the iron and arsenic and acid. After this he took hydrochloric acid alone with the liver diet.

I saw him again on November 25, 1927, when the erythrocytes numbered 4,900,000, the hæmoglobin value was 95% and the leucocytes numbered 7,500 per cubic millimetre.

He was back at work as a railway signalman, was a ruddy colour and stated he could now feel a threepenny piece between his fingers which he previously could not feel. (He is a Scot.) Other signs of spinal cord involvement had also disappeared.

CASE III.—J.G., a male, aged fifty-seven years, was admitted on September 15, 1927, and is still in hospital. He was in Sydney Hospital from March 19, 1926, to October 29, 1926, the erythrocytes numbered 1,300,000 and the hæmoglobin value was 35%; the number of erythrocytes rose to 3,000,000 on discharge. He was also in hospital for a week early this year. His progress is shown in Table IV.

This was a very severe case and for the first week the patient was in a stuporose condition. He had scattered

TABLE II.—SHOWING PROGRESS OF PATIENT IN CASE I.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
July, 19, 1927	0·74	20%	3,000	Many macrocytes, lemon yellow colour and jaundiced sclerotics.
July 24, 1927	1·14	30%	1,350	After transfusion.
July 28, 1927				Liver diet commenced.
August 10, 1927	1·3	30%	5,300	
August 22, 1927	2·04	55%	10,600	
September 6, 1927	3·02	60%	7,400	
September 15, 1927	3·7	80%	8,700	
September 29, 1927	4·3	87%	10,100	
October 12, 1927	4·5	75%	11,400	Red cells appear normal.

TABLE III.—SHOWING PROGRESS OF PATIENT IN CASE II.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
May 13, 1927	1·35	27%	2,600	
May 27, 1927	0·89	25%	6,000	Red cells show extreme variations in size and shape. Transfusion.
June 14, 1927	1·2	33%	760	
June 22, 1927	1·35	31%	1,400	After second transfusion.
July 12, 1927	2·0	45%	1,260	
July 19, 1927	1·8	50%	2,250	Date of commencing liver diet.
August 10, 1927	3·05	63%	7,000	
August 22, 1927	3·56	84%	7,400	
September 17, 1927	4·22	82%	6,100	
October 7, 1927	4·6	80%	8,400	Red cells normal, no macrocytes.

TABLE IV.—SHOWING PROGRESS OF PATIENT IN CASE III.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
September 9, 1927	0·72	14%	2,000	Macrocytes numerous. Transfusion.
September 21, 1927	0·93	18%	1,400	Liver diet commenced.
September 26, 1927	1·6	34%	9,100	
October 17, 1927	2·64	56%	4,500	Sustained fracture, hip and arm, October 10, 1927.
October 26, 1927	4·00	56%	8,000	Macrocytes present, but not numerous.
November 25, 1927	5·6	80%	14,400	Blood practically normal; signs of spinal cord involvement have gone.

petechial hæmorrhages in his skin and was unable to take the liver diet during this week. After transfusion he was able to take the diet.

As noted above he was in hospital for seven months in 1926 when he had arsenic and hydrochloric acid; the erythrocytes were then 1,300,000 per cubic millimetre on admission and 3,000,000 on discharge.

Early this year he was again admitted for a week and was on the same treatment. Erythrocytes were then about 1,000,000.

During his present stay in hospital he unfortunately was allowed to walk. He fell and fractured his right femur and right humerus. The fractures are doing well and apparently have not hindered his progress.

It will be seen that the erythrocytes have risen from 930,000 to 4,000,000 in about five weeks while he has been on liver diet.

CASE IV.—R.H., a male, aged sixty-one years, was admitted on September 20, 1927, and is still in hospital with severe neuritis and double footdrop (arsenical ?) and facies of a moderate to severe anæmia. He was placed on liver diet on admission. His progress is shown in Table V.

This patient's form of the disease is not of so severe a type. Apparently he has been treated for pernicious anæmia with arsenic over a long period. He has a severe neuritis with double footdrop and peeling of the skin of the feet. It is possibly due to arsenic although there is also a history of alcoholism which is not recent.

The erythrocytes have risen to 4,000 000 in about five weeks' treatment with liver diet.

CASE V.—A.C., a male, aged sixty years, was admitted on September 24, 1927, and is still in hospital. He has been under my care in Sydney Hospital several times previously during the last four years, when he was treated with hydrochloric acid and arsenic. His progress is shown in Table VI.

This patient was under my care in Sydney Hospital from March, 1923, to July, 1923.

At that time Dr. Macdonald Gill, then Senior Honorary Physician, Sydney Hospital, showed me an article in *Brain* by Hurst and Bell[3] and this patient was investigated and treated on the lines laid down in that article. Achlorhydria was found and streptococci were isolated from the duodenal contents at a later date. The patient was shown at the meeting of the New South Wales Branch of the British Medical Association at Sydney Hospital in 1923. I think his was the first case illustrative of Hurst's theory of pernicious anæmia shown in New South Wales.

He was treated with hydrochloric acid and arsenic and the erythrocytes rose from 1,960,000 to 4,600,000 in four months.

He has been in hospital several times since. On the liver diet it will be seen that erythrocytes rose from 2,000,000 to 4,000,000 in a little over one month.

CASE VI.—This patient was under the care of Dr. Adams, Honorary Physician of Sydney Hospital. R.W., a male, aged forty-seven, was admitted on September 14, 1927, and discharged on November 18, 1927. His progress is shown in Table VII.

This patient was on hydrochloric acid but not on arsenic. The erythrocytes have risen very rapidly from 1,600,000 to 3,900,000 in under one month.

Comment.

These results show that a diet rich in mammalian liver has essentially benefited the above patients, though the ultimate effects of regular feeding of large amounts of liver can be left only to the future. It is interesting to note here that Minot and Murphy in a recent article[4] state that a non-protein fraction of liver has been isolated, that acts specifically and appears to benefit patients in the same way as whole liver.

Symptomatic improvement in the six cases has been pronounced, tongue and cord symptoms in particular improving and all the patients comment freely on a sense of well being and of improved appetite. The erythrocytes have risen in all six patients to 4,000,000 within a period

TABLE V.—SHOWING PROGRESS OF PATIENT IN CASE IV.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
September 9, 1927	2·07	55%	2,700	Anisocytosis, macrocytes fairly numerous, normoblasts and megaloblasts present.
October 5, 1927 ..	3·09	74%	4,100	
October 19, 1927 ..	3·57	80%	9,300	
October 26, 1927 ..	4·07	97%	10,200	Occasional macrocytes and normoblasts.
November 25, 1927	4·35	100%	10,200	Some macrocytes present and some variations in size and shape of red cells.

TABLE VI.—SHOWING PROGRESS OF PATIENT IN CASE V.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
September 25, 1927	2·01	51%	4,700	Fair number macrocytes and anisocytosis.
October 5, 1927 ..	3·1	78%	10,500	
October 12, 1927 ..	3·06	75%	9,000	Macrocytes numerous. Out of bed. Ordered back to bed
October 17, 1927 ..	3·5	83%	11,000	Many macrocytes.
October 27, 1927 ..	4·19	90%	12,300	Macrocytes less in number.
November 23, 1927	3·85	85%	11,401	Has had a boil on the neck for week previous.

TABLE VII.—SHOWING PROGRESS OF PATIENT IN CASE VI.

Date.	Erythrocytes, in millions per cubic millimetre.	Hæmoglobin Value.	Leucocytes, per cubic millimetre.	Comment.
September 14, 1927	1·6	38%	1,700	Anisocytosis pronounced, many macrocytes.
September 18, 1927				Liver diet commenced.
September 21, 1927	1·9	40%	4,900	
September 28, 1927	2·8	55%	9,000	Macrocytes not numerous.
October 6, 1927 ..	3·97	70%	12,400	
October 28, 1927 ..	4·8	87%	15,700	Red cells appear normal.
November 9, 1927	5·05	88%	5,500	Red cells practically normal in size and shape.

of two months and in four within a period of five weeks. The hæmoglobin value in all but the most severe case has risen above 80%.

The results are similar to those reported by Dr. Elliot[2] of America and by Minot and Murphy.[1] The latter report 105 patients under treatment for one to three years in America. It would appear that pernicious anæmia is probably a deficiency disease, like beri-beri and pellagra and that feeding with liver supplies a missing substance that promotes the formation of blood elements. Minot and Murphy[1] hold that this substance probably stimulates maturation of the megaloblasts that crowd the bone marrow in cases of pernicious anæmia in a relapse.

Acknowledgments.

I am indebted to Dr. H. C. Adams, Honorary Physician, Sydney Hospital, for kind permission to utilize the records of his case and also to the Pathological Department of Sydney Hospital for the blood counts.

References.

[1] G. R. Minot and W. P. Murphy: "Treatment of Pernicious Anemia by a Special Diet," *Journal of the American Medical Association*, August 14, 1926, page 470.

[2] Charles A. Elliot: "Liver Feeding in Pernicious Anæmia," THE MEDICAL JOURNAL OF AUSTRALIA, November 12, 1927, page 672.

[3] A. F. Hurst and J. R. Bell: "The Pathogenesis of Subacute Combined Degeneration of the Spinal Cord—With Special Reference to its Connection with Addison's (pernicious) Anæmia, Achlorhydria and Intestinal Infection," *Brain*, Volume XLV, page 266.

[4] G. R. Minot and W. P. Murphy: "A Diet Rich in Liver in the Treatment of Pernicious Anemia," *The Journal of the American Medical Association*, September 3, 1927, page 759.

Reviews.

OPERATIVE SURGERY.

"THE OPERATIONS OF SURGERY," edited by Rowlands and Turner and now presented in its seventh edition, is more widely known as Jacobson's and under this name it has enjoyed a high reputation for many years.[1] The book has occupied a unique position amongst surgical works, combining as it did excellent and detailed descriptions of surgical operations as actually performed by the author, together with his shrewd practical discussions and comments on the pitfalls and difficulties likely to be encountered. To the earnest beginner as well as to the more experienced it was a veritable mine of information, not to be found in most other works on operative surgery; the author had the happy gift of making available to the reader in the clearest possible way the wealth of his own personal experience, supplemented throughout by illustrative clinical notes of his patients. The authors of the present edition are to be congratulated on the success with which they have carried out the always difficult task of continuing the spirit of a well-known book and at the same time bringing it up to date. They might with advantage have departed here and there still further from the original text. Many new illustrations have been added and many of the previous ones redrawn and improved.

The authors' objects, as stated in their preface, are: (i) To give such a comprehensive and detailed account of the operations of surgery as to be of real assistance to young surgeons taking up responsible positions and to candidates for higher examinations; (ii) to provide a convenient source of reference to the busy surgeon; (iii) to give credit and fair criticism to any new work that seems worthy of consideration and trial. They issue the warning that operations often appear from reading and watching to be much easier than they are, thus leading the inexperienced and the unwary to attempt more than they can manage. Moreover, they point out that the surgeon who is in honour bound to give the best possible service, cannot do so unless he has devoted himself for years to the study of the natural history of diseases and has mastered both the science and the art of surgery.

Where so many alterations and additions have been made only some can be mentioned. In Volume I new sections have been added on the treatment of shock. Blood transfusion is well described, but unnecessary emphasis is laid on the difficulties of determining the grouping of donors, when it is stated that this requires considerable practice and technical skill and will as a rule be carried out by an expert in a clinical or bacteriological laboratory; hence the methods of determining blood groups are not described. Group sera for testing purposes are now widely available and the technique is exceedingly simple and may be quickly and accurately carried out by any practitioner or house surgeon. Even when group sera are not available, a direct testing should be well within the powers of any competent medical man and in fact the method loses much of its value as a life saving measure unless it is generally known and promptly used. In transfusions for diabetic coma only the intravenous use of bicarbonate of soda is mentioned; "Insulin" and glucose are not referred to. A short account of Makin's views of wounds of arteries has been added. Under the heading "Surgery of Tendons" Stoeffel's operation is included as well as a short reference to Royle's operation of ramisection. More details of bone grafting could have been inserted; the reader is referred for these to other works. The account of bullet wounds of the skull and brain has been rewritten and Cushing's work is well summarized and illustrated. Other additions are the alcohol injection method of treatment in trigeminal neuralgia, a new section on plastic surgery of the face including the work of Gillies and others at Sidcup during the war, also Gillies's operation for cleft palate. The chapter on the thyreoid gland is disappointing. Further additions and alterations could have been made with advantage to bring it more into line with the advances of recent years. Additions have also been made to the excellent chapter on the breast. The section of the thorax has been largely rewritten and recent methods of Moriston Davies and others in the surgical treatment of tuberculosis of the lung and bronchiectasis have been added. Under the heading, empyema, the advice that in most cases a general anæsthetic may safely be given and of these gas and oxygen or chloroform and oxygen are the most suitable, will not be endorsed by many so far as chloroform is concerned, while the treatment of post-influenzal and other streptococcal empyemata by aspiration is not mentioned. A description of Lériche's periarterial sympathectomy with a series of illustrations has been added, also Timbrell Fisher's operation for removal of foreign bodies and menisci of the knee joint. In Figures 387 and 388, copied from previous editions, a tourniquet is shown incorrectly applied in the former around the calf of the leg and in the latter just above the malleoli, whereas the description states it should be applied around the lower third of the thigh. The chapters on nerves and vertebral column have been largely added to with several good illustrations.

In Volume II amongst the additions to the excellent chapter on hernia, Australian surgeons will note with pleasure due recognition of Mr. Hamilton Russell's work. Mr. Turner's operation of removing the sac of an inguinal hernia through an incision in the aponeurosis of the external oblique without disturbing the external abdominal ring will be recognized by many as the operation taught and practised by Mr. F. D. Bird many years ago. The filigree operation is retained only for large umbilical herniæ. Plastic and fascial methods of repair are not described. Additional diagrams and description of subphrenic abscesses are given and the sections on gastric and duodenal surgery are enlarged and improved, particular additions being Balfour's operation, Rammstedt's, Pólya's, gastro-jejunal ulcers and excision of duodenal ulcers. Under "Surgery of the Colon" Waugh's operation is included as well as a method of "aseptic" intestinal anastomosis. The section on diverticulitis of the colon has been rewritten and additions made to those dealing with the liver and spleen. The treatment of hydatid cysts of

[1] "The Operations of Surgery," by R. P. Rowlands, O.B.E., M.S. (London), F.R.C.S. (England), and Philip Turner, B.Sc., M.S. (London), F.R.C.S. (England); Seventh Edition; Volumes I and II; 1927. London. J. and A. Churchill; Sydney: Angus and Robertson, Limited. Royal 8vo., pp. 1055 and 902, with illustrations. Price: 70s. net.

the liver is not quite in accord with the methods most favoured by Australian surgeons. The authors retain their preference for Kocher's incision in the surgery of the gall bladder and biliary tract and a section has been added on the reconstructive surgery of the bile ducts.

In the chapter on the kidney, as in the case of the thyreoid, the authors might have excised more freely with advantage and given greater prominence to modern methods of investigation, especially in the matters of preoperative diagnosis and estimations of renal efficiency. Young's operation of perineal prostatectomy has been added, also his operation of nephrectomy for malignant disease of the kidney.

It may be confidently predicted that this revised edition will continue to find favour as a thoroughly reliable, practical and straightforward presentation of the art and science of surgery as carried out by the leaders of British surgery of to-day. As such it cannot fail to be of the greatest help to all who are engaged in active surgical work with its varied problems and difficulties.

HETERODOX VIEWS ON TUBERCULOSIS.

THE first impression gained on opening Dr. Minchin's book[1] dealing with the polymorphism of the tubercle virus and his treatment of tuberculosis with garlic is of surprise that it should have attained to a third edition. Though the book was first published in 1912, his theories appear to have escaped the notice of most authorities on tuberculosis. At least no reference can be found to them in standard textbooks of medicine, nor in treatises on tuberculosis. The impression is not dispelled by a more careful study of the author's thesis.

Dr. Minchin is distinctly heterodox in his views. That the tubercle bacillus is polymorphous was of course contended twenty years ago by Much and "Much's granules" are known to all students of medicine. They are believed to be either degenerative forms of the rod-shaped bacillus or spores; neither view is yet proven. The author, however, advances the views that they are yeasts and that these yeasts are really the cause of the disease, tuberculosis. "The bacillus itself is a polymorphous form, the function of which appears to be to distribute its contained yeasts; it appears to take no part in very active disease and it is not found there." Few will be prepared to accept this bland statement, even after a study of the author's thesis. Nor does there appear warrant for his assertions that: "It is of the greatest importance that we should clearly recognise that these tubercle spheres are the main cause of the spread of pulmonary tuberculosis" and that clothing and room atmosphere should be examined for these spheres, as the "most usual source" of infection. The evidence that the tubercle bacillus is the cause of tuberculosis is overwhelming and it seems equally certain that true bacilli are always present with Much's granules in cases in which the latter forms are found. That being so, the nature of these granules is of academic rather than practical interest. At any rate, Dr. Minchin's hypothesis is more ingenious than convincing.

The yeasts are illustrated in photomicrographs, magnifications of 4,000 and 5,000 being employed with rather terrifying results. Whether these pictures with their enormous enlargement help to prove the author's case is open to doubt.

In Part II the author deals at great length with the treatment of tuberculosis by garlic. There are, it seems, only two forms of treatment in pulmonary tuberculosis: "I have never seen a pulmonary case which failed to improve under the allyl treatment in three or four weeks recover except under surgical treatment," a naïve statement which can be accepted at its face value. Equally ingenuous, though more illuminating is the following: "A patient who loathes the garlic in any form, even if persevered with, seldom derives any benefit from it." Great is the power of mind over body!

In pulmonary tuberculosis an inhalation is given, eucalyptus being added "solely with the object of changing the odour." Garlic is also given internally in capsule form or as a syrup or infusion. In surgical tuberculosis recourse is had to a plaster, an inhalation being given as well, in the belief that "the lungs are always invaded by tubercle spheres in these cases." The results, according to the cases cited, border on the miraculous. The author gives an account of upwards of twenty patients treated with a reckless disregard for clinical details. Thus we read of a girl, aged thirteen, with tuberculous disease of the right foot of eight years' duration. "There were eight sinuses . . . the foot was, in fact, burrowed through in almost every part." After two months' treatment with plaster and inhalation "she could not only walk, but run and play with relatives without any lameness whatever." Again, we have the story of a man, aged forty-seven, with "râles all over the lungs" and "every appearance of rapidly approaching death." With the inhalation, but no change in any other detail in treatment, note the dramatic result: "On the fourteenth day his temperature became subnormal, whilst his chest expansion was one and a half inches greater. His recovery was uninterrupted and he was able to return to perform his duties in two months."

Garlic is known to have a mild antiseptic action and that it is excreted by the lungs is recognized—only too easily. Whether it has any real disinfectant action on the pulmonary or other tissues is more than doubtful; creosote, a similar volatile substance and a much more powerful bactericide, is no longer believed to be lethal to the tubercle bacillus in the lungs. However that may be, it is difficult to be serious on reading an account such as Dr. Minchin has given of his successes with *oleum allii*. In fairness to him, however, it should be allowed from his own account that he has gained a few disciples. It can be said of the first part of the book that it has an insecure foundation of scientific fact; the second part is unlike the first in that it rests on no scientific basis whatever.

[1] "A Study in Tubercle Virus, Polymorphism and the Treatment of Tuberculosis and Lupus with Oleum Allii," by William C. Minchin, M.D. (Dublin); Third Edition; 1927. London: Baillière, Tindall and Cox. Crown 4to., pp. 126, with illustrations. Price: 25s. net.

DISEASES OF INFANCY.

IN the third edition of "The Management of Sick Infants" the authors, Langley Porter and William F. Carter, have retained the original form of the book and have brought it up to date by including the more important and practical of recent developments in the treatment of sick infants.[1] In the chapter on diarrhœa, cœliac disease is described at greater length. The work of Brown and his colleagues at Toronto is discussed. A well planned series of researches by these workers has shown that the high protein feeding, so widely used in the treatment of this disease, causes a definite change in the bacterial inhabitants of the intestine and that coincident with improvement the *Bacillus lacticus* dominates all organisms. The treatment is described in detail.

The chapter on nutrition has been largely rewritten. Breast feeding and some of the difficulties which may arise in connexion with it, are dealt with rather inadequately. Several pages are taken up with a description of acute alimentary intoxication and its treatment. A short chapter on the care of the premature infant has been added.

The third part of the book in which the various methods used in the treatment of infants are described, has been amplified in several directions. A description of the direct transfusion of blood by Brooks, reprinted from *California and Western Medicine*, has been introduced with several excellent illustrations. Methods of transfusion of citrated blood are fully described and illustrated.

The book concludes with a chapter of recipes and formulæ, in which are included the various methods of preparing acidified milk.

This edition maintains the standard set by the previous issues and should prove of great value to the practitioner, so much of whose work lies amongst sick infants.

[1] "Management of the Sick Infant," by Langley Porter, B.S., M.D., M.R.C.S. (England), L.R.C.P. (London), and William E. Carter, M.D.; Third Revised Edition; 1927. St. Louis: The C. V. Mosby Company. Royal 8vo., pp. 726, with illustrations. Price: $8.50 net.

The Medical Journal of Australia

SATURDAY, DECEMBER 17, 1927.

The Medical Profession and the State.

THE Federal Government appears to have accepted the policy enunciated by the Royal Commission on National Insurance. It will be remembered that in 1925 this commission issued a report on "national insurance as a means of making provision for casual sickness, permanent invalidity, old age and unemployment." The policy is contained in the second general recommendation of the report in the following terms:

> That a national health scheme be instituted which will provide adequate medical treatment for the people and which will provide the requisite machinery for the prevention of sickness and accident and
>
> (i) That such scheme be dissociated from the administration of the national insurance fund.

It is understood that a bill is being drafted to provide monetary compensation for the whole community in the event of illness and incapacity from accident on a contributory basis. That the amount of compensation likely to be offered will barely suffice to cover the incidental cost of the illness or incapacity of a breadwinner is almost certain.

Senator Millen's recent conversations with the representatives of the several Branches of the British Medical Association in Australia and with the Federal Committee leave no doubt in the mind of the medical profession that the scheme is to be constructed without the provision of a national health scheme and that the medical profession will be used by the national insurance fund solely for the purposes of controlling the claims for compensation by medical certificates.

If all insured persons in the Commonwealth are to be entitled to sickness, accident, invalidity, prematernity and postmaternity and superannuation benefits and a child allowance for each dependent child under the age of sixteen years, it is evident that the contributions will have to be made by the insured as long as they are in earning, by employers and by the State, that is out of consolidated revenue. Less than one-third of the wage and salary earners has up to the present joined a friendly society or insured in some other way against the cost of incapacity. This means that about two-thirds of the wage and salary earners will be called upon to pay premiums for a compulsory insurance for the first time in their lives. But there will be no compulsion to take out a further insurance against the cost of medical attendance. It has been stated on many occasions that medical attendance is available for practically every individual in the Commonwealth in need of it. The friendly society lodge member is adequately safeguarded. The person in steady earning as a rule can afford to pay for the average amount of medical attendance, but only those with incomes well above the average can meet the cost of a prolonged illness. Hospital treatment as a rule covers but a portion of the period of incapacity and continued treatment after discharge is not always feasible in the out-patient department. It will be necessary for the medical profession to consider what the position will be when this new form of national insurance is in force. The receipt of thirty shillings a week will not place a person usually earning but a small wage in clover, if he happens to be the breadwinner and has several dependants. Some arrangement will be needed in regard to medical attendance. The individual will of necessity come into contact with the medical profession, as he will need a medical certificate to enable him to receive his sickness benefit. It would be unreasonable to expect that the medical profession will give gratuitous treatment to all those who are not members of some lodge and who are unable to pay private fees. Admission to hospital must depend on suitability from a medical point of view. Moreover, the accommodation available in hospitals would probably be insufficient if every person of small means were referred to a hospital on account of illness or accident preventing him or her following his or her ordinary vocation. On the other hand it is inconceivable that the commissioners or other persons charged with the administration of the national insurance fund will be willing to grant

sickness or accident benefit unless they receive some assurance that suitable medical or surgical treatment is being applied.

It may be found that the proposal to institute national insurance on a compulsory basis without medical benefit is unsatisfactory and full of pitfalls. That is a matter for the legislature. But as long as such a plan is in existence, the medical profession will need to lend its aid in the endeavour to cope with incapacity and to reduce the amount of disease in the community. That national health insurance can be an effective machine for improving the health of the community is well known. Dr. T. McKibbin has argued the case in an eloquent manner at Dunedin in February of this year during the second session of the Australasian Medical Congress. The problems involved are becoming more and more complex with the introduction of benevolent legislation, such as workmen's compensation, child endowment and maternity allowance. The medical profession finds itself compelled to reconsider its policy in regard to honorary services in public hospitals. In connexion with the medical treatment of persons insured under a national insurance scheme it may have to modify its new hospital policy. It is essential in any consideration of this problem to keep in mind the preventive aspect of medical practice and to ascertain whether the health departments can assist in discovering some scheme whereby this half measure can be converted into an expedient that will be of real benefit to the people of Australia.

Current Comment.

THE ALVEOLAR PHAGOCYTE.

THE essential feature of pneumonoconiosis is a fibrosis of the lung resulting from the inhalation of fine particles of foreign matter. When the dust enters the alveoli, it sets up a reaction in the form of a catarrhal process and this is characterized by the appearance and proliferation of a certain type of cell known as the dust cell. Considerable controversy has centred around the origin of these phagocytic cells. It will be remembered that when Watkins-Pitchford was in Australia in 1923, he discussed this question (see THE MEDICAL JOURNAL OF AUSTRALIA, September 20, 1923). He referred to the work of Mavrogordato in South Africa and said that the conclusion was inevitable that the dust cells, found in the interstitial tissue of the lung, had been originally endothelial cells lining the air vesicles. He believed that when these cells had engulfed particles of inhaled foreign matter, they detached themselves from their positions and were either shed into the cavity of the vesicles and escaped in the expectoration or made their way backwards into the areolar tissue which lay behind the air vesicles. This epithelial origin (the word "endothelial" has been wrongly used) has been accepted by many observers. It is stated, on the other hand, in the latest edition of "Osler's Modern Medicine" that an analysis of the evidence as to the origin of the dust cells favours the view that they are endothelial in character. According to this the dust cells arise from the cells lining the blood vessels, for these constitute the only endothelial structures of the lung. A third view which has gained increasing acceptance, is that they are monocytes which have assumed a special phagocytic function. These views have recently been discussed by N. C. Foot who has also carried out some experiments on the dust cells in rabbits.[1] His communication is all the more interesting because he has made a complete *volte face*. In 1920 he concluded that the pulmonary dust cell arises from the capillary endothelium of the lung. He has been courageous enough to recant in the light of further investigations and now pins his faith on the monocytic doctrine. His previous view which expresses the endothelial hypothesis, was that the capillary endothelium became swollen, that its cells proliferated and then migrated into the alveoli where they became free phagocytes and multiplied still further by mitotic division. As a result of experimentation with meningeal tuberculosis Foot found that there was little change in the local capillary endothelium and yet tubercles formed near the vessels and consisted of carbon marked cells. He found similar cells within the lumina of the pial vessels, often in mitosis and mingled with the other blood cells. He thus came to the conclusion that something was wrong with his earlier view, for it should have applied to the meningeal tuberculosis, unless this condition was a solitary exception to the rule. He regards it as possible that both he and Permar, who as a result of independent investigation had reached a similar conclusion, interpreted as vascular endothelium in mitosis what was in reality mitosis in monocytes adhering to the capillary walls on the inside.

Foot describes a series of observations made by himself on rabbits. He introduced carmine into the circulation of a rabbit and after a period of fifteen minutes withdrew blood from the animal and injected it into three other animals. They also received intratracheal injections of pasteurized milk containing 0·5% of saturated alcoholic solution of Sudan III. They were killed at intervals of twenty-four, forty-eight and ninety hours respectively after the injection by the introduction of air into the circulation. Scrapings of lungs were examined in each instance and sections were examined after they

[1] *The American Journal of Pathology*, September, 1927.

had been hardened in formalin. A second set of experiments was similar to the first with the exception that the blood was withdrawn from the donor after an interval of five instead of fifteen minutes. It was hoped that by the introduction of "marked monocytes" from another animal some light might be thrown on the origin of intraalveolar phagocytes. If the phagocytes contained carbon, they would represent cells from the donor animal. The milk was used as a mild irritant to excite the emigration of macrophages into the alveolar sacs. The carmine injected could not be found in the blood cells of the animal that received the transfused blood in either set of experiments. In the donor rabbit for the first set, however, dust cells were found in the air sacs, laden with carmine which had been introduced intravenously, and this was taken as strongly indicating that this particular material had been carried out of the vessel within the cytoplasm of emigrating leucocytes rather than transferred from the circulation to intraalveolar dust cells. No evidence was found in any of the sections that the alveolar epithelium of the lung produces dust cells. Foot points out that the alveolar epithelium possesses totally different affinities for silver salts and can be readily recognized and differentiated from the alveolar macrophages by means of silver tannate impregnation. Foot's view of the origin of the dust cells may be summed up in the statement that he accepts the monocytic origin, but that at the same time he does not deny that the histiocytes or reticulo-endothelial cells of the pulmonary stroma have a share in the production of dust cells. He believes that these cells play a subsidiary rôle.

Another investigation on this subject has been carried out by L. U. Gardner and D. T. Smith.[1] They have studied the origin of the alveolar phagocyte by means of paraffin sections of tissue stained supravitally with neutral red. They found that alveolar phagocytes are not present in any great number in the normal lung, but that they accumulate rapidly after intrapulmonary irritation. This rapidity suggests that they arise from some source which is readily available. Three possibilities are considered by these observers to be entertained. They eliminated the first possibility, multiplication of preexisting phagocytes, because they found that free phagocytes accumulate with the same rapidity in the air spaces of very young animals which previous to irritation contain no cells of this type. The second possibility, origin from the blood stream, is eliminated because alveolar phagocytes accumulate after death of the animal when the blood is no longer circulating. They accumulated even when the blood was thoroughly washed out of the vessels prior to the intraalveolar irritation and staining. Gardner and Smith also refer to work previously reported by themselves and Dworksi in which they made a series of blood counts of blood taken from the right and left ventricles of the heart at intervals after inhalation infection with the tubercle bacillus. They found that the number of monocytes in the blood entering the lungs did not exceed that in the effluent blood to a sufficient extent to account for the great number of epithelioid cells in the lung. They have thus eliminated the monocytes as direct ancestors of the alveolar phagocyte. This narrows the possible origins down to the alveolar epithelium, the vascular endothelium and the connective tissue clasmatocytes or histiocytes. In regard to the alveolar epithelium Gardner and Smith find it difficult to believe that within five minutes the sparsely scattered fine granulations of the epithelial cells could be transformed into the rosette of large densely stained rings or globules of dye seen in the free phagocyte. Furthermore the demonstration of an intact sheet of lining epithelium without evidence of desquamation is opposed to the view of epithelial origin. Gardner and Smith, like Foot, abandon the endothelial origin "with reluctance." They have failed to find a single example of proliferation in the capillary endothelium. There remains only the clasmatocyte or histiocyte group of cells and in this they have included the septal cells of the alveolar walls (the septal cells of Lang). They regard the septal cells as modified clasmatocytes on account of their reaction to neutral red in supravital staining. It must be pointed out that Aschoff regards the septal cell as an epithelial cell, but Gardner and Smith point out that in supravitally stained preparations it bears no resemblance to any other epithelial cell in the body. Their final conclusion is that the alveolar phagocyte is produced by the desquamation of septal cells, that these belong to the group of connective tissue phagocytes which arise from previously inactive reticulum cells and that they pass through a monocyte-like phase in the process of maturation.

In discussing this question it may well be asked why it is necessary to postulate a phagocytic response on the part of a cell which is not normally phagocytic. Epithelial cells are not normally phagocytic. Moreover, they belong to a different embryological layer, the ectoderm. The typical phagocyte on the other hand is a mesenchymal structure. It is safe to conclude, Aschoff's view of the septal cell notwithstanding, that the alveolar epithelium takes no part in the formation of the dust cell or as it should be called, the alveolar phagocyte. The question of the endothelium is more difficult. It is true that Foot and Gardner and Smith have but recently abandoned this conception and they give good reasons for the faith that is in them. It may be concluded that the onus is on those that hold this view to prove their case. There remain the monocytes and the clasmatocytes. These are known to be phagocytic. At the same time acceptance of the work of Sabin and her collaborators which was discussed in these pages last week, does not exclude the possibility of endothelium taking a share in this process for she believes that clasmatocytes arise from endothelium. Her claim, however, has not been corroborated. It is probable that the monocytes and the reticulum cells of the connective tissue (the reticulo-endothelial system) each take a share in the formation of alveolar phagocytes, although the weight of evidence is in favour of the latter.

[1] *The American Journal of Pathology*, September, 1927.

Abstracts from Current Medical Literature.

PÆDIATRICS.

Nervous Symptoms in Atrophy of the Liver.

J. C. SPENCE and A. G. OGILVIE (*Archives of Disease in Children*, February, 1927) describe the nervous symptoms which occurred in two children with liver atrophy and review the clinical records of nineteen other cases in which *post mortem* examination was performed. The first patient was a boy of nine years of age. His illness lasted three weeks. Before the onset of the symptoms he had been a perfectly healthy, active boy and was a member of a healthy family with no evidence of syphilis. The first symptoms were lassitude and drowsiness with some vomiting. During the second week he was lethargic and drowsy and the possibility of encephalitis or meningitis was considered. Two days before admission to hospital his abdomen became swollen, his feet œdematous and he had definite delirium. At this time there was no jaundice and the urine contained no sugar or albumin. The delirium was particularly violent. He gave vent to peculiar wails and piercing shrieks. He sat in the corner of his cot, resembling some terror stricken animal in its cage. The pupils were widely dilated, but reacted to light. As far as could be seen, there was no reaction to accommodation and the ocular fundi were normal. Both knee jerks and ankle jerks were present. On the right side there was a definite extensor plantar response. There was no stiffness of the neck. The cerebro-spinal fluid was normal. The periods of wailing and crying were varied by the intermission of convulsive attacks in which he held himself in a position of opisthotonos. The attacks lasted perhaps half a minute and were severe enough to suggest poisoning by strychnine. When these passed, there was neither rigidity nor stiffness of the neck. He lay for the most part quiet and flaccid with occasional return of the "cholæmic crying." On the day of his death he vomited blood. No jaundice appeared until twenty-four hours before he died. A trace of sugar was present in his urine. At *post mortem* examination a typical condition of advanced subacute liver atrophy was found. There was no evidence in the brain, either naked eye or histological, to account for the nervous signs and symptoms. There was a typical elliptical peptic ulcer 2·5 centimetres (one inch) in breadth in the first part of the duodenum. The second patient was a boy, aged four years, who had been "out of sorts" for four months. Three weeks before admission to hospital he became affected by jaundice with vomiting and clay coloured stools. Three days before death the condition changed rapidly for the worse. He became restless and the peculiar cholæmic crying noticed in the first patient commenced. He sat up in bed wailing and shrieking intermittently. Twenty-four hours before death he began to have fits, during which he passed urine involuntarily. He died in deep coma. Slight glycosuria persisted until two days before death when "Insulin" and glucose treatment was instituted. *Post mortem* the findings were those of typical liver atrophy. Of twenty-one patients with liver atrophy, five were children of fourteen or under. In all five children and in eleven of the adult patients a certain sequence of nervous symptoms characterized the terminal or cholæmic stage. The most characteristic of the nervous symptoms was that of maniacal shrieking and wailing. In three cases an extensor plantar response was present. In one case there was palatal paralysis and nasal speech. One patient had a paralytic strabismus, due to a sixth nerve paralysis. In four cases the cerebro-spinal fluid was examined. In none was there an increase of cells or protein.

Enlargement of the Thymus.

E. A. MORGAN, A. H. ROLPH and A. BROWN discuss the clinical manifestations of an enlarged thymus (*Journal of the American Medical Association*, March 5, 1927). In spite of the large amount of clinical and experimental work which has been done in recent years, there still remains doubt as to the exact place that the thymus occupies in the bodily economy. The weight of the gland varies within certain limits. From birth to two years of age the average weight is from seven to ten grammes. The authors have considered everything over ten grammes to be abnormal and they hold that glands weighing from twenty to thirty grammes should be considered hyperplastic. The thymus is affected by various infections and by conditions disturbing the general nutrition of the body. In acute diseases, such as pneumonia, nephritis and starvation, there occurs a pathological involution which may not persist. Thus in the course of one of the acute infectious diseases, the gland may be temporarily reduced to one-fifth or one-sixth of its normal size. Fifty-four patients were selected for study, twenty-eight of whom were males and twenty-six females. In two cases enlargement of the thymus was discovered accidentally and was not accompanied by symptoms. In the remaining fifty-two attention was directed towards the gland by the presence of suggestive symptoms. In twenty-nine cases the complaint was of spasms of holding of the breath. During a paroxysm of crying, occasioned by an injury or an attack of temper, the child holds its breath, becomes cyanotic and usually falls to the ground. The attack may be accompanied by a transient loss of consciousness. The results of treatment in this type of case were very striking, twenty-seven patients becoming free from symptoms after one or two treatments. Nine patients suffered from attacks of syncope. The child becomes unconscious and blanched with almost imperceptible respirations. The periods of unconsciousness last from a few minutes to as long as four hours. In eight cases cyanosis unassociated with breath holding spasms occurred. In three patients the cyanosis was persistent, although the intensity varied. Seven of these patients responded to X ray treatment; the other child died on the tenth day during a very severe attack. A continuous hoarse cough may be the only sign of thymic disturbance. Noisy nasal breathing was evident in some of the cases. It is difficult to explain the connexion between this sign and the enlargement of the thymus. The uniformly good results from X ray treatment convinced the authors that there is a very close association. An analysis of these symptoms suggests that the cause of their production is of a mechanical nature and is most probably due to vagus stimulation. X ray therapy proved successful in relieving the symptoms in 96%. This form of treatment if not carried to excess, is unattended by danger. Recurrence of thymic enlargement or of clinical manifestations was noted in 12 patients or 22%. In all these further X ray therapy resulted in complete recovery.

Volvulus Neonatorum.

O. W. NIEMEIER (*Canadian Medical Association Journal*, July, 1927) reports a case of *volvulus neonatorum*. The baby was an apparently healthy male child, weighing 3·7 kilograms (eight pounds six ounces). On the second day the infant began to vomit, the vomited material being of a greenish colour. It passed meconium on the first day, but after the second day the stools showed no trace of food or bile. On the fourth day the vomited material contained blood. A diagnosis of hæmorrhage of the newly born was made and a transfusion of blood was given. The author saw the infant on the sixth day and performed laparotomy after a second transfusion. At operation the stomach and duodenum were found distended and the rest of the intestine was collapsed. At the duodeno-jejunal junction there was obviously a band or twist causing obstruction. The remainder of the bowel was convoluted into a mass which could be lifted out of the abdomen. The transverse colon and the caecum were included in the mass and had no attachment to the posterior abdominal wall. The mesentery was twisted at its origin, there being three turns from right to left in a clockwise direction. This was untwisted and almost immediately the upper coils of the small intestine became normally distended. The day after operation vomiting ceased and the baby's bowels acted and the stools contained curds and bile. The next day vomiting recurred and continued until the infant's death on the eleventh day after birth. At *post mortem* examination the whole of the intestine was normally distended and the twist had not recurred. The second portion of

the duodenum contained a gangrenous area 3·75 centimetres (one and a half inches) in diameter. There was no attachment of the colon to the posterior abdominal wall. In practically all the cases of volvulus in the new born which have been reported the colon had failed to rotate and acquire its attachment to the posterior parietes. In these cases the whole intestine hangs suspended by its mesentery as a pedicle and this condition predisposes to torsion.

ORTHOPÆDIC SURGERY.

Arterial Vascular Disease of the Extremities.

GEORGE E. BROWN and MELVIN S. HENDERSON (*Journal of Bone and Joint Surgery*, October, 1927) lay stress on the necessity for the orthopædic surgeon to have a clear conception of vascular disease of the extremities as a cause of pain and disability. Diseases of the peripheral arteries can be divided into two main types according to their functional or organic nature, the functional or vasomotor disturbances and the organic or obliterative disturbances. The functional diseases of a localized nature are represented by two clinical entities: Raynaud's disease and erythromelalgia. The essential points in diagnosis of functional cases are: (i) The open palpable arteries and the presence of pulsations, (ii) the intermittent colour and temperature changes with complete or over recovery usually following exposure to increased local or environmental heat, (iii) the frequent occurrence of disturbance in all four extremities. These vaso-spastic disturbances may be secondary and occur as a symptom of organic disease. The authors state that vasomotor disturbances occur in 30% of their cases of *thromboangiitis obliterans* and in about 10% of epipheral arteriosclerotic disease. In dealing with erythromelalgia the authors state that these conditions are less clearly defined than spastic disorders. Gangrene and trophic disturbances do not occur and the underlying irregularity is an intermittent vasodilatation of the capillaries, arterioles and venules. The increased surface temperature is demonstrable during attacks and is primarily due to dilatation of the arterioles; the dilatation of the venules and capillaries produces the redness. Many additional capillaries are opened. There are two main types of *thromboangiitis obliterans* affecting the arteries of the extremities; *thromboangiitis obliterans* or Buerger's disease and arteriosclerotic disease with or without thrombosis. Diabetic gangrene is a form of the latter disease. These types include more than 95% of the organic arterial disease of the extremities. The authors have studied more than one hundred and seventy cases of the disease during the last four years. There is no known specific cause, but pathological changes certainly suggest an infective basis. Possible contributing ætiological factors are tobacco, race, age, sex and exposure to cold. Tobacco has been assigned as a major exciting cause by Meyer. The variations in the course and types of the disease are many. The authors describe twelve clinical types. Claudication is an important symptom in this disease. In 51% of the authors' cases this was the first symptom. The symptom appears early in the feet and is described as an arch or heel type claudication. Colour changes in the feet are usually next in sequence. Next in order of development may be trophic disturbances; acute thrombosis with cyanosis of single toes, development of ulcers following trimming of nails or meddlesome surgery on toes. With the onset of trophic changes or gangrene a second type of change occurs. This is usually continuous and severe. The relief of pain constitutes the important problem at this stage, the success of which in many cases determines the preservation of the limb. The disease is usually bilateral and the upper limbs may be affected as well. The second type of organic vascular disease of a localized nature is that of arteriosclerosis with or without thrombosis. This frequently appears in the aged. The clinical course is milder than in Buerger's disease. With regard to treatment, in Raynaud's disease of the hand no curative treatment is available, while in the lower extremity lumbar sympathetic ganglionectomy is curative. The treatment of erythromelalgia and allied vasodilated syndromes is most unsatisfactory. Frequently it resolves itself into symptomatic relief of attacks of burning by immersion of feet in cold water. Elevation of the limbs at night and "Atophan" are also used. Organic disease of the arteries presents entirely different therapeutic considerations. With gangrene and continuous pain the chief problem is relief of pain. Injection of foreign proteins will give relief in 80% of the cases. Lumbar ganglionectomy has been performed by Adson in eleven cases of *thromboangiitis obliterans*. In nine the results were satisfactory. Relief from pain was complete and large trophic ulcers healed. The exact status of the operation in this disease will be determined only after long periods of post-operative observation. The differential diagnosis is also discussed.

Surgery of the Nerves of the Hand.

STERLING BUNNELL (*Surgery, Gynecology and Obstetrics*, February, 1927) asserts that repair of the nerves of the hand is almost always satisfactory. With the experience of one hundred and five cases he feels justified in stating that good regeneration always follows. This he attributes to two factors: (i) That here nerves are no longer mixed, (ii) that the regenerative power of the nervous system increases as the periphery is approached. He points out that sensory and motor functions are of equal importance for with sensation lost the "eyes of the finger are blind." As atrophic fingers tend to stiffen and in them wounds do not heal well, he advises that severed nerves be repaired and good regeneration awaited before operations in such fingers are attempted or tendon grafts are put in place. The shortest time required to restore sensation to pin prick and cotton wool over the whole anæsthetic area after suture in the proximal part of the palm was three months, the average about seven months; in the distal part of the palm the average was three months twenty days, the rate in the digits being roughly the length of a finger segment a month. Suture above the wrist required thirteen months. It was found that the speedy regeneration was uninfluenced by the length of time between accident and repair, moderately influenced by the age factor and greatly influenced by the state of nutrition of the hand. Six cases of nerve grafts included in this series were all successful. Among the causal agents of these nerve injuries ill judged surgical incisions were fairly common. The suturing of digital nerves was done with number 1¢ straight Kirby needle and the finest silk. Including the two guides, six sutures were placed in each; the sheath only was caught. In suturing several branches to a single nerve, as the six branches of the median nerve in the palm, to the main nerve, the plan was adopted of first uniting all the branches together with a central stitch in their sheathes so that they were grouped as one nerve; they were then united to the main trunk.

Paralysis of the Abductors of the Arm.

LEO MAYER (*The Journal of Bone and Joint Surgery*, July, 1927) has devised a new method of transplanting the *trapezius* for paralysis of the abductors of the arm. It consists briefly of detaching the *trapezius* from its bony insertion, lengthening it by an artificial tendon constructed of *fascia lata* and suturing this tendon to the humerus near the deltoid insertion. To attain a satisfactory result the following muscles must be active: the *trapezius*, the *serratus anterior*, the *pectoralis major* and the *coracobrachialis*. In all patients so far operated on the *rhomboideus* and the *levator scapulæ* have also been present. The chief difficulty of working out a technique is the lateral slipping of this fascial tendon. This was solved by removing enough of the acromion to permit the passage of the tendon between it and the joint. Details of the operative technique and the results in six cases are given. In one there was a complete failure owing to the tearing away of the tendon from the humerus. In the second case the result was poor owing to the child being removed from hospital contrary to advice. In the remaining four instances the results have been gratifying. The operation has the advantage over the arthrodesis that it gives a more complete range of abduction and the æsthetic effect is more pleasing. It has the disadvantage of requiring three months of post-operative exercises.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Coast Hospital, Little Bay, on November 10, 1927. The meeting took the form of a series of demonstrations by members of the staff.

Erythromelalgia.

A male patient, aged thirty-three years, had been admitted on May 28, 1927, complaining of swelling and trembling of the hands and feet. The patient had suffered from measles and pertussis in infancy. He had seen four and a half years' war service with the motor transport and had suffered from neither wounds nor illness. About six months after his return from the war the patient had noticed that his hands commenced to swell in the winter. The hands had remained œdematous and red with a tingling sensation in the fingers. This condition had subsided entirely in a few weeks and had not recurred until the following winter. A recurrence had taken place in each succeeding winter and each successive attack had lasted longer, been more severe and involved more extensive areas. In the winter of 1927 the whole of the forearms, hands, legs and feet had been affected. A typical clinical course consisted in the early stages of œdema of a part followed first of all by redness and then by blueness with sensations of cold and of pins and needles. Fine and coarse tremors were present in the affected part. Then after a partial subsidence the condition lasted two or three days. At the time of admission no abnormality had been detected in the cranial nerves. Hyperactivity of all the tendon reflexes had been present. There had been no ankle or patellar clonus and no Babinski plantar reflex. Sensation had been normal. The motor functions had been good and there had been a slight increase of muscle tonus of the legs and forearms. The mental condition had been good. Both the blood and the cerebro-spinal fluid had been subjected to the Wassermann and Kahn tests after a provocative dose of "Neosalvarsan" and no reaction had been obtained. The cells had been normal in the cerebro-spinal fluid. No evidence of aneurysm of the aorta had been forthcoming on radiological examination of the chest. The patient had been treated by the administration of a mixture containing hyoscine. His condition had improved somewhat and the tremors were not violent.

Erythema Multiforme.

A male patient, aged thirty-eight years, had been admitted to hospital on November 8, 1927. He had suffered from influenza in 1919 and since that time had suffered from eight or nine attacks similar to that for which he was admitted. During an attack the rash persisted for about two weeks, was irritable for two days only and did not cause constitutional disturbance. Ten days prior to admission the patient had become affected by pharyngitis and the day before admission the rash had appeared. On admission the mouth had been in a bad condition and the teeth dirty. Stomatitis had been present with some pharyngitis. The eyelids had been inflamed and the eyes watery. A papulo-vesicular rash had been present on the limbs, but not on the trunk. At the time of demonstration all stages of the rash were represented, some clear vesicles were present, some were hæmorrhagic and some were becoming dry. In some papules the "target" character was clearly seen. The patient had a temperature of 38° C. (100·4° F.). The urine was normal and the heart and lungs were clear.

A female patient, aged thirty-four years, had been admitted on October 25, 1927. In the opinion of the medical practitioner who had sent her into hospital, the patient had been suffering from *erythema bullosa*. A pustular rash had been present for seven days and the patient had complained of pains and aches in her joints. Her temperature had been above 38·9° C. (102° F.). The patient had said that she felt as though she were suffering from influenza. On admission the patient had appeared to be a well nourished woman. Her tongue had been thickly furred and infected bullæ had been scattered over both forearms, but most prominently on the extensor aspect. The bullæ had been scanty on the upper part of the arm and on the legs. A large area of erythema had been present on the back in the region of the *vertebra prominens*. At the time of demonstration the patient had improved as a result of treatment by salicylate of soda and calamine. The lesions were drying up.

A female patient, aged thirty-four years, had been admitted to hospital on October 18, 1927. Three days before admission the patient had had a rigor. The throat had become painful on the following day and she had complained of pains in the back. On admission examination had revealed hypertrophied tonsils with a dirty, yellowish exudate on both. Bilateral cervical adenitis had been present. No Klebs-Löffler bacilli had been found on examination of throat and nasal swabbing. The other systems had been clear. On October 26, 1927, a papulo-vesicular rash had appeared around the neck and on both arms and forearms. At the time of demonstration the patient's condition had improved very much as a result of treatment with salicylate of soda.

Ulcer of the Tongue.

A male patient, aged fifty-one years, an omnibus driver, had been admitted on September 27, 1927. He had suffered from a chancre in 1897. When admitted to hospital in 1908 he had suffered from tertiary glossitis and ulceration of the tongue. At this time he had been treated with "Soamin" and had improved, but the ulcer on the tongue had not healed. He had been readmitted in April, 1911, with a swollen white tongue with ulcers on the dorsum and on the under surface. He had been treated with "Salvarsan" at intervals of nine months and the ulcer on the tongue had healed about January, 1912. Reexamined in February, 1923, he had been found to have chronic glossitis as before with a small ulcer on the dorsum of the tongue. He had had no treatment since January, 1912.

Reexamined in July, 1927, he had been found to suffer from ulcer of the tongue and leucoplakia. An incomplete reaction had been obtained to the Wassermann test and the result of the Kahn test had been positive. Five injections of 0·3 gramme of "Salvarsan" and ten injections of one cubic centimetre of "Bicreol" had been given as well as a mixture containing iodide of potash and perchloride of mercury. The patient had been readmitted on September 27, 1927, with an ulcer of the tongue about the size of a shilling and with induration of the surrounding tissue. Another course of "Salvarsan" and "Bicreol" injections had been given together with large doses of iodide of potash. In spite of this treatment the ulcer remained unhealed. It was thought that the ulcer might probably be epitheliomatous.

Mycosis Fungoides.

A male patient, aged sixty-eight years, a bush worker, had been admitted to hospital on October 22, 1927. Eight months prior to admission he had noticed a rash all over his body. At first it had been very itchy. It had been treated by a medical practitioner, but without improvement. More recently the face and scalp had begun to swell. The patient had resided in the northern part of New South Wales all his life. He had had no previous illness and had always been robust and active. On admission general thickening and nodulation of the scalp and face had been present. Suppuration had been present in the posterior part of the scalp. The face and ears had been occupied by nodular swellings. The left eye had been closed and the right eye partly closed in consequence. The nodules had been red, but not anæsthetic. On the trunk wide areas of thickening and redness had been present, but these had not been so nodular as those on the face. The limbs had been similarly affected, but with nodules of various size. The knee jerks were present and no abnormality could be discovered in chest or abdomen. The urine had occasionally reacted to tests for sugar. A blood count had revealed the following information:

Erythrocytes, per cubic millimetre ..	5,100,000
Hæmoglobin value	110%
Colour index	1·0

Leucocytes, per cubic millimetre ..	15,000
Polymorphonuclear cells	78%
Lymphocytes	22%

The serum had failed to react to both the Wassermann and the Kahn tests. The blood sugar at 11.30 a.m. on October 26, 1927, had been 0·188% and on the following day 0·097%.

Smears from nodules on the cheek, ear and arm had been examined for leprosy bacilli, but none had been found. Sections of a nodule from the right arm had been made and the Principal Microbiologist had forwarded the following report:

> Sections of the nodule show extensive infiltration of the subcutaneous tissue with masses of tumour cells with scanty cytoplasm and rounded or irregularly shaped hyperchromatic nuclei showing frequent mitoses.
>
> The cells are for the most part arranged diffusely, though in places there is an indefinite alveolar arrangement resembling that seen in melanomata. Blood vessels with well defined walls extend between the tumour cells. Beneath the main mass of the growth smaller masses appear to be extending into the deeper tissues and in one of these deeper areas the tumour cells are arranged around a sweat gland.
>
> The epithelium over the surface of the tumour is intact but in one or two places appears to be invaded by tumour cells.
>
> No acid fast bacilli were seen in sections stained by Ziehl Neelsen's method.

Fracture of the Fifth Cervical Vertebra.

A male patient, aged twenty-four years had been admitted to hospital on October 20, 1927. Thirteen days prior to admission he had been involved in a motor car accident and had been thrown on to his back. He had been unconscious for a few minutes and on recovery had felt severe pains in the back between the shoulder blades and had been paralysed in the legs. He had then been taken to hospital and had become unconscious for a short period. Since then he had complained of pains in the back, of paralysis of the legs, of paresis of the hands, of incontinence of urine and of inability to pass his motions. Examination on admission had revealed complete flaccid paralysis of the lower extremity. A Babinski or automatic spinal reflex had been present on both sides. Flaccidity of the muscles of the abdominal wall had been noted. The intercostal muscles had not moved on respiration, breathing being diaphragmatic. The abdominal reflexes had been absent. There had been no loss of motor power in the upper extremities except in the median nerve supply to the fingers. The patient had been unable to grip an object. Sensation to touch and pain had not been abolished, but had been confused and numbed up to the level of the first thoracic distribution. A sense of passive position and movement had been absent.

On the day after admission X ray examination had revealed a fracture of the fifth cervical vertebra.

On October 22 the patient had been seen by Dr. A. W. Campbell who had considered the crush to be incomplete. The knee jerks had been present and a strong withdrawal reflex had been noted on stimulation of the sole of the foot.

On October 26 Dr. Norman Royle had seen the patient and had considered that his condition would improve. Subsequently a small pressure blister had appeared on the left buttock.

On October 13, 1927, the temperature had risen to 40·5° C. (105° F.). The respiratory system had been clear. A systolic murmur had been present at the pulmonary area. The blister on the buttock had developed into a dark pressure sore, but the skin was not broken. The urine had been normal. The abdomen had been soft and the patient had not complained of pain. He had had severe thirst and a dry tongue.

On November 3, 1927, albumin had appeared in the urine and the temperature had still been high. Two days later the patient had felt comfortable and well.

It was pointed out that it had been necessary to catheterize the patient's bladder once at night and twice during the day almost since admission. In addition he had had incontinence. The patient's temperature continued to remain high.

Poliomyelitis Following Trauma.

A male patient, aged twenty-nine years, had been admitted on October 4, 1927, with a history that on September 24, while cranking a car, he had been struck on the nose by the starting handle. This blow had lacerated the bridge of the nose and had also caused him to jerk his head back violently. The wound had been stitched at Saint Vincent's Hospital and three days later antitetanic serum had been administered. Two days later urticaria and general malaise had been present. On October 1 the patient had complained of pain in the left axilla and on the following day the pain had extended into the left arm and across the back of the neck to the right shoulder. On October 3 paresis of the left arm had been present and the patient had been unable to abduct the right arm. On admission the patient had had wrist drop on the left side and paralysis of the right deltoid muscle together with considerable tenderness along the lateral and medium aspects of each arm. There had been no loss of sensation. On October 12 the tenderness of the arms had been less, but the weakness of the left wrist and of the right shoulder had persisted. X ray examination had failed to reveal any bony lesion in the cervical or thoracic vertebræ.

On October 22 Dr. A. W. Campbell had seen the patient and had found weakness and loss of tone of the right deltoid muscle of the biceps and of the *latissimus dorsi*. He had also found some weakness of the right triceps, but the right pectoral muscles had been in good condition. The grip of the left hand had been weaker than that of the right and the intrinsic muscles of the left hand had been weak. The left biceps had been weak, but stronger than the right. Dr. Campbell had failed to find any sensory disturbances. Faradic stimulation of the muscles and nerves of the two upper limbs had failed to elicit response in the right deltoid, in the left *extensor communis*, in the left *extensor pollicis longus*, in the left *extensor carpi longus*, in the *flexor carpi radialis longus* and in the *infraspinatus* and *teres* muscles.

Probable Gumma of the Skull.

A male patient, aged forty-eight years, had been admitted on November 4, 1927, with a history that four months previously a pimple had appeared on the left side of the scalp and that this had gradually broken down and extended to form an extensive lesion. The patient was a Chinese and no further history could be elicited on account of his limited knowledge of the English language. Examination on admission had revealed a large ulcer over the left parietal region measuring approximately 8·75 by 7·5 centimetres (three and a half by three inches). The ulcer was irregular in outline; its edges were slightly raised, they were not indurated, were not undermined, but they sloped gradually inwards. The ulcer had no punched out appearance. It was not tender. Its base consisted of bone covered for the most part by a thin layer of unhealthy granulation tissue, but the bone was eroded in places and on the posterior border the pulsation of the subjacent brain was visible. The bone was also eroded beneath the scalp in this area. The posterior border was slightly raised and suppurating. The left side of the face was fuller than the right. There was a discharging sinus at the angle of the jaw on the left side probably taking origin from a subjacent suppurating lymphatic gland. The presence of scarring in the left posterior triangle suggested a healed sinus in this area. There was a dimple in the skin connected with the outer end of the clavicle. Small shotty glands were present in the posterior triangle in the left side. The patient stated that this area had been opened some weeks after the start of the scalp condition. There were no enlarged glands elsewhere. The abdomen presented no abnormality. There was a large hydrocele of the left *tunica vaginalis* and a small soft swelling in the spermatic cord above the upper pole of the right testis. There were no scars on the penis. The heart and lungs were apparently normal. The patient's

blood yielded a reaction to both the Wassermann and the Kahn tests.

Fracture of the Spine.

A male patient, aged thirty-eight years, had been admitted to the Coast Hospital on October 13, 1926. He had been conveyed from Broken Hill by aeroplane. He had been injured on August 20, 1925, by a fall of earth. He had sustained a fracture of the spine at the level of the twelfth dorsal vertebra and the following symptoms had been present: loss of power and sensation below the level of the injury, retention of urine and incontinence of fæces, right facial paresis, complete deafness in the right ear. On his admission to the Coast Hospital the patient had presented similar symptoms together with pyuria and a sacral bed sore. X ray examination had revealed a compression fracture of the body of the twelfth dorsal vertebra. The honorary physician and surgeon had considered that the cord lesion was too severe and of too long standing to warrant operation. The patient's general condition had remained excellent. The temperature had been normal for some months. The bed sore was slowly healing and the urinary condition had improved.

Multiple Myelitis.

A female patient, aged thirty-two years, had been admitted on October 13, 1927, complaining of loss of power of both lower extremities with a feeling of numbness from the feet to the hips and inability to walk. The onset of the patient's illness had been characterized three or four days previously by a feeling of numbness in the feet and a sensation of "walking on wadding." No cerebral symptoms had been present nor any pain and there had been no interference with micturition or defæcation. She had had two similar attacks previously. The first attack had occurred a year previously and complete recovery had occurred after five months' rest in bed. The second attack had occurred four months after the first and had lasted three weeks. It had been followed by recovery which was apparently complete. The patient denied having suffered from venereal disease. The patient had one healthy child aged three years and had had no other pregnancies.

Examination revealed that the patient was a well nourished woman, her colour was good and her heart and chest were apparently normal. The pupils reacted to light and accommodation. The knee jerks and ankle jerks were absent. There was no plantar reflex. The existence of abdominal reflexes was doubtful. Sensation of pain was greatly diminished over the distribution of the fifth, sixth, seventh and eighth cervical and first dorsal segments in the right arm and over that of the eighth cervical segment in the left hand. It was absent over the distribution of the fourth and fifth lumbar and the first, second and third sacral segments and diminished over that of the third lumbar segment on both sides. Perception of heat and cold was absent and diminished over the same areas of distribution. Perception of light touch was also absent in these areas with the exception of the area distribution of the third lumbar segment where it was diminished. The sensation of passive position and movement was lost in the joints of the feet and in the ankle joints, diminished in the knees and hip joints and diminished in the joints of the hands, wrists, elbows and shoulders. The patient had great loss of power in both legs, but was able to use all the muscles. Movements at the ankles were very weak, but a little stronger at the knees and hips. Muscular power in the arms was good. Very little wasting was present. There was no spasticity. The patient had a steppage gait. X ray examination of the spine had failed to reveal the presence of any lesions. The patient's blood had yielded a reaction to the Wassermann test.

Pemphigus.

A female patient, aged fifty-one years, had been admitted on September 19, 1927. Nine months previously she had noticed "sand fly bites" on both thighs. These had been very itchy. Widely separated and similar areas had gradually appeared on all extremities and on the trunk. Within two months the arms had been involved. The face had not been much affected. Eight months previously she had been treated for scabies with sulphur ointment. Three months previously the whole of the body, excluding the face, had become covered with papules and bullæ, the intervening skin becoming bluish and later brownish. She had noticed that any cutaneous trauma healed readily. At the time of admission the papulo-vesicular eruption had extended over the whole body except the face. Examination of fluid from the bullæ had revealed the presence of a streptococcus and of *Staphylococcus aureus*. Treatment had consisted in a "Cyllin" bath in a strength of 15 cubic centimetres to 135 litres. This bath had been given every day for twenty to thirty minutes. The patient had been ordered to wear pyjamas saturated in boracic acid ointment and had been given *mistura quininæ effervescens* by mouth. On September 30 protein shock therapy had been begun with antityphoid and paratyphoid vaccine, 5,000,000 organisms being given intravenously. This had been repeated every four days in increasing doses. On October 12 "Oscol" sulphur had been given in doses of four cubic centimetres (one fluid drachm) three times a day and on October 14 a lotion consisting of glycerine and lead had been substituted for the boracic ointment. At the time of demonstration some definite improvement was manifested. The blebs did not appear so frequently and were smaller.

Seborrhœic Eczema.

A male patient, aged twenty-eight years, had been admitted on October 10, 1927, suffering from seborrhœic eczema. The condition had commenced as pimples in the hair which improved, but returned later spreading over the face. On admission widespread scabs had been present over the chin and the left parietal region, connecting in front of the left ear. Some raw areas had been present, the scab having been removed by starch poultices. The first form of treatment adopted had been resorcin ointment after the application of *aqua calcis* and black wash. Salicylic oil 3% had been applied to the scalp. Subsequently a sulphur ointment had been substituted. This had consisted of bismuth subnitrate, oxide of zinc, *oleum amygdalæ dulcis* and lanoline.

A female patient, aged forty-two years, had been admitted on October 26, 1927. Eight months previously the patient had noticed three or four pimples in the right antecubital fossa. Later on the left antecubital fossa had become affected and then the neck had become involved. The patient had been treated for this condition at the Coast Hospital on two previous occasions. On admission examination had revealed eczema of the neck, eyebrows, forehead, superior extremities, upper half of the chest and inner aspects of the thighs. There had been numerous minute papules accompanied by scaling of the epidermis and dandruff of the scalp and eyebrows. Salicylic oil 3% had been applied to the head. The scalp had been washed with soap and water every fourth day. An ointment consisting of zinc cream, ichthyol and menthol had been rubbed into the affected parts. The itching had been relieved by the administration of a mixture containing bromide of soda, phenazone and caffein citrate. "Ametox" was being given intravenously in doses of 0·5 gramme. The patient was improving slowly.

Cancer of the Breast.

A woman, aged forty-five years, had had the right breast removed in May, 1922, on account of scirrhous cancer. Six months prior to admission in October, 1927, the patient had complained of pain in the right hip and leg. At the time of admission a small, hard, movable nodule had been present in the lower part of the operation scar. A flat, hard mass had been present in the right upper quadrant of the left breast. The ribs on both sides had been tender, especially at the back. The pelvis had been tender on pressure and the right trochanter enlarged. X ray examination revealed extensive areas of absorption in the bones of the skull, ribs, lumbar vertebræ, pelvis and femur.

Myxœdema.

A woman, aged fifty years, had been admitted to hospital on October 26, 1927, complaining of attacks of breathlessness and occasional swelling of the feet of two years'

duration. Two years previously the patient had suffered from "pneumonia and heart failure." Since then she had not been well. She had frequent attacks of breathlessness even when at rest in bed and occasionally complained of headaches. For four years she had suffered from nocturnal frequency of micturition. She had noticed that her speech had become slow and that her weight had increased considerably. Her hair had also been falling out. On admission it had been noticed that the patient lay comfortably in bed, that her hair was thin and her eyebrows very sparse and that both speech and movements were slow. The skin was very dry. The thyreoid gland had not been palpable. The pulse rate had been 80 in the minute, its tension increased and its volume medium. The systolic blood pressure had been 140 and the diastolic pressure 105 millimetres of mercury. The heart had been normal. No abnormality had been discovered in the respiratory or alimentary systems. No tenderness had been present in the loins. The urine had been acid, its specific gravity 1010 and it had contained a trace of albumin. It was pointed out that the skin was dry and the subcutaneous tissue firm. No pitting occurred on pressure. The eyebrows were very sparse and the hair thin on the scalp. No casts had been discovered in the urine and *Bacillus proteus* had been obtained on culture.

A woman, aged forty-eight years, had been admitted to hospital on October 7, 1927. She gave a history of breathlessness on exertion and of swelling of the abdomen and of the feet for six weeks prior to admission. For seven years she had complained of these symptoms and had been bedridden at intervals. On admission the skin had been very dry and the hair and eyebrows scanty. The lips and cheeks had been cyanosed and she had become breathless on the slightest exertion. Considerable œdema of the legs and abdominal wall had been present. The pulse had been regular, of full volume and of increased tension. The systolic blood pressure had been 190 and the diastolic 140 millimetres of mercury. The cardiac dulness had been normal. The sounds had been poor in tone and the second sound had been accentuated at all areas, particularly the aortic. Some crepitations had been audible at the bases of both lungs. The tongue had been dry and red and the abdomen very distended. No fluid thrill had been obtainable, but dulness had been present in both flanks. The liver had not been enlarged, but tenderness had been present in the right hypochondrium. In addition to dryness of the skin there had been extensive œdema of the abdominal wall, the legs and the back. The thyreoid gland had not been palpable. Tenderness had been present in both loins. The urine had contained a quantity of albumin, it had been acid and its specific gravity 1016 to 1020. Improvement had been very slow. Thyreoid extract was being given in increasing doses. The amount of albuminuria varied from day to day and both hyaline and fatty casts were present.

Meningococcal Cerebro-Spinal Meningitis.

A woman, aged thirty-two years, had been admitted to hospital on August 31, 1927. In June, 1927, she had been treated for influenza and pneumonia and had been in hospital three weeks. After returning home she had suffered from a sudden rise in temperature and from severe headache. She had been admitted to Saint Joseph's Hospital, Auburn, and a diagnosis of meningitis had been made. From this institution she had been transferred to Broughton Hall on account of her mental symptoms. Dr. Evan Jones had reported that the patient was weak and debilitated, that she had photophobia and slightly bilateral ptosis, that no psychotic symptoms were present and that she had seemed to be improving when her temperature suddenly rose to 40° C. (104° F.) and she complained of pain in the head, back, lower limbs and vomiting. The cerebro-spinal fluid at this time had been cloudy and under increased pressure.

On admission to the Coast Hospital the temperature had been 38·5° C. (101·4° F.), the pulse rate 132 and the respiratory rate 24 in the minute. She had complained of headache, but had been intelligent. Head retraction had been present. Examination of the nervous system had revealed a normal intelligence, normal cranial nerves, absence of paralysis or weakness of the limbs, rigidity of the muscles of the neck, normal sensory functions, pupils which reacted and were equal, exaggerated knee jerks, flexor plantar reflex and Kernig's sign. The other systems had been normal. On the day of admission lumbar puncture had been performed and the cerebro-spinal fluid had contained numerous pus cells and meningococci. On September 1, 1927, sixty cubic centimetres of antimeningococcal serum had been given by the intrathecal route, after the same quantity of cerebro-spinal fluid had been removed. The organisms had been more numerous than on the previous occasion. Thirty cubic centimetres of antimeningococcal serum had been given on September 3. On September 5 meningococci had been scanty in fluid removed prior to another dose of serum. Further doses had been given on September 7, 9 and 15 and no organisms had been found in the cerebro-spinal fluid. On September 19 the patient had felt and looked better. No rigidity had been present in the neck and from this time the patient had gradually improved. At the time of the meeting there was some weakness of the muscles of the forearms and in the lower limbs the general weakness and flabbiness of muscles was more pronounced in the flexors of the hips and knees. The knee jerks were exaggerated and Kernig's sign was not present.

MEDICO-POLITICAL.

AT the request of the Council of the New South Wales Branch of the British Medical Association, the following memorandum and schedule of fees are published in connexion with the *Workers' Compensation Act*. These documents have been issued to members of the New South Wales Branch in order to guide them as to the fees which the Associated Licensed Insurers have agreed to pay for the specific services rendered. We understand that members are at liberty to charge higher fees after arrangements have been made with the injured worker or with his employer or if the practitioner is prepared to justify the reasonableness of his claim before the appropriate authority. According to the Act the fees and charges for the treatment are limited to such charges as prevail in the same community for similar treatment of injured persons.

WORKERS' COMPENSATION ACT, 1926-1927.

Memorandum to Members.

Payment by Insurers of Fees and Charges for Attendance upon Injured Workers.

Schedule (Schedule "D") of fees and charges applicable where the medical attendant looks to the insurer for payment for his services instead of exercising his legal right to look to his patient or other person liable.

The Council has been approached by the Associated Licensed Insurers, who comprise twenty-four (24) insurance companies licensed under the *Workers' Compensation Act* "to carry on the business of insurance of employers against their liability to their workers," as well as by the Government Insurance Office of New South Wales, with a view to a schedule being arranged under which the insurers concerned would be prepared to undertake to pay medical practitioners directly for their attendance on injured workers entitled to compensation (cost of treatment) from their employers.

The schedule (Schedule "D") forwarded herewith has been drawn up and accepted for the purpose by the insurance companies concerned and by the Council (council meeting October 4, 1927) and the Government Insurance Office has undertaken to abide by it in the same way as if it were one of the Associated Licensed Insurers.

It is to be noted that the fees and charges set out in the schedule are lower than those prevailing throughout the State for similar treatment of injured persons. On the other hand, practitioners recognize that, in many cases at all events, it is an advantage to them to be able to look to the insurers for their fees instead of to their patients and to know that if they do so their fees will be paid to them promptly.

In regard to the "Schedule of Fees and Charges for Treatment of Injured Workers" approved by the Council July 23, 1926, previously sent to members for their information and guidance, it should be noted that the present schedule (Schedule "D") has *not* been substituted

for it. The schedule (July 23, 1926), however, is not applicable where the Medical Attendant looks to the Government Insurance Office or to one of the Associated Licensed Companies for his fees.

For the convenience of all concerned, the medical attendant when availing himself of Schedule "D," should when possible, send his statement of fees and charges (see Note 2 of schedule) *direct* to the insurer, and for this purpose he should obtain the necessary information from the injured worker or the employer.

The following is a list of the insurers who have undertaken to abide by the schedule (Schedule "D"), namely:

1. Government Insurance Office of New South Wales, Treasury Building, Bridge Street, Sydney.

ASSOCIATED LICENSED INSURERS.

2. Australian General Insurance Company, Limited, 16 Martin Place, Sydney.
3. Bankers' and Traders' Insurance Company, Limited, 48 Pitt Street, Sydney.
4. Colonial Mutual Fire Insurance Company, Limited, 74 Pitt Street, Sydney.
5. Commonwealth Traders' Insurance Company, Limited, 8 O'Connell Street, Sydney.
6. Co-operative Insurance Company of Australia, Limited, 56 Pitt Street, Sydney.
7. Employers' Liability Assurance Corporation, Limited, 3 Bond Street, Sydney.
8. Farmers and Graziers' Co-operative Grain Insurance and Agency Company, Limited, Circular Quay, Sydney.
9. Farmers and Settlers' Co-operative Insurance Company of Australia, Limited, 129 Pitt Street, Sydney.
10. Federal Mutual Insurance Company of Australia, Limited, 129 Pitt Street, Sydney.
11. Law, Union and Rock Insurance Company, Limited, 39 Pitt Street, Sydney.
12. London and Lancashire Insurance Company, Limited, 95 Pitt Street, Sydney.
13. Manufacturers' Mutual Insurance Limited, 26 O'Connell Street, Sydney.
14. Mercantile Mutual Insurance Company, Limited, 16 Martin Place, Sydney.
15. National Insurance Company of New Zealand, Limited, 14 Spring Street, Sydney.
16. New Zealand Insurance Company, Limited, 79 Pitt Street, Sydney.
17. Northern Assurance Company, Limited, 6 O'Connell Street, Sydney.
18. Queensland Insurance Company, Limited, 52 Pitt Street, Sydney.
19. South British Insurance Company, Limited, O'Connell and Hunter Street, Sydney.
20. Southern Union General Insurance Company of Australia, Limited, Ocean House, 34 Martin Place, Sydney.
21. Standard Insurance Company, Limited, 51-57 Pitt Street, Sydney.
22. United Service Insurance Company, Limited, 15 Dalley Street, Sydney.
23. Victoria Insurance Company, Limited, 83 Pitt Street, Sydney.
24. Western Assurance Company, 11 Bond Street, Sydney.
25. Yorkshire Insurance Company, Limited, 22 Bond Street, Sydney.

Schedule of Fees and Charges for Treatment of Injured Workers.

Approved by the Council of the British Medical Association, New South Wales Branch, and by the Associated Licensed Insurers, October 4, 1927.

Note 1.—In procedures not specified the fees shall be the same as those for specified cases and procedures of approximately equal magnitude.

Note 2.—Accounts should be set out in detail, showing the date of each visit or dressing or operation and the amount charged for each.

Note 3.—X ray examination should be made when necessary in cases of injury or doubtful injury to bones or joints.

Note 4.—The practitioner in any report he may give as to the condition of the injured worker should state if in his judgement consultation with another practitioner should be arranged. Such consultation may be required in cases such as the following, namely:

1. Persons of advanced years.
2. The infirm or those of poor physique.
3. Injuries to the head, thorax or abdomen.
4. Serious injury of any kind.
5. Injuries which may involve nerves.
6. Complications, such as albuminuria, glycosuria, osteo-arthritis.

Note 5.—The fees as set forth in the schedule should include reports and certificates to be given at reasonable periods when required.

Note 6.—Payment for two or more operations performed at the one time are not cumulative. The fee for the main operation to be paid in full, and in addition 50% of the specified charge for each additional operation.

	At Hospital[1] or Home.	At Surgery.
1. First four visits	10s. 6d.	7s. 6d.
Subsequent visits	7s. 6d.	7s. 6d.
2. Surgical dressings (materials)		Specify costs
3. Mileage—		
Beyond 2 miles, one way (8 a.m. to 8 p.m.)	5s.	per mile
Beyond 2 miles, one way (8 p.m. to 8 a.m.)	7s. 6d.	per mile
(4 miles by rail to be equivalent to 1 mile by road)		
4. Assisting at operations		£ 1 1 0
5. Administering general anæsthetic—		
Major operations		£ 3 3 0
Minor operations		£ 1 1 0

	Total Fees (including after-attendance, but not previous attendances).[1]
6. Fractures—	
Nasal bones	£ 3 3 0
Metacarpal, one or more	£ 3 3 0
Metatarsal, one or more	£ 5 5 0
Phalanx, one	£ 2 2 0
More than one	£ 3 3 0
Carpal bone	£ 3 3 0
Tarsal bone	£ 5 5 0
Forearm or leg—	
One bone (shaft)—	
Forearm (radius or ulna)	£ 6 6 0
Tibia	£ 10 10 0
Fibula	£ 6 6 0
Two bones (shafts)—	
Forearm	£ 10 10 0
Leg	£ 15 15 0
Colles's	£ 7 7 0
Pott's	£ 12 12 0
Femur	£ 21 0 0
Humerus	£ 13 13 0
Clavicle or Scapula	£ 6 6 0

[1] In regard to the word "hospital" as used herein it is understood to refer to cases treated in private practice, including cases treated at public hospitals as private patients.

[1] "Total fees" means the total fees of the medical attendant, but does not include:
(1) Cost of surgical dressings.
(2) Mileage.
(3) Fees of other practitioners (*exempli gratia* anæsthetist, radiologist, pathologist, assistant at operation, consultant).
(4) Charges made by nurses, masseurs, or other persons.

	£	s.	d.
Patella—			
Without operation	5	5	0
Open operation	15	15	0
Mandible	6	6	0
Maxilla	4	4	0
Pelvis	15	15	0
Ribs	3	3	0
7. Dislocations—			
Mandible	3	3	0
Clavicle	6	6	0
Shoulder	6	6	0
Elbow	6	6	0
Wrist	4	4	0
Finger	2	2	0
Hip	12	12	0
Knee	7	7	0
Patella	5	5	0
Ankle	7	7	0
Toe	3	3	0
8. Sprains—			
Fees according to magnitude and time spent.			
9. Amputations—			
Finger	4	4	0
Two or more	5	5	0
Toe	5	5	0
Two or more	6	6	0
Hand, forearm or arm	10	10	0
Shoulder disarticulation	21	0	0
Foot, leg or knee	15	15	0
Thigh	21	0	0
Hip disarticulation	31	10	0
10. Special operations and procedures—			
Trephining or resection of skull	15	15	0
Laminectomy	26	5	0
Hernia, radical operation	12	12	0
Hernia, double	18	18	0
Hernia, by taxis	2	2	0
Paracentesis thoracis—by aspiration	3	3	0
Laparotomy and repairs to viscera	26	5	0
Semilunar cartilage removal	14	14	0
Catheterization of urethra	1	1	0
11. Eye operations—			
Cataract operation	15	15	0
Removal of foreign body from conjunctiva—one or more	0	10	6
Removal of foreign body from cornea—one or more	1	1	0
Enucleation of the eye	10	10	0

Medical Prizes.

THE ALVARENGA PRIZE.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize amounting to about three hundred dollars will be made on July 14, 1928, provided that an essay deemed worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but one of the conditions of the competition is that they shall not previously have been published. Essays should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. They must be typewritten and must be presented in English acceptable for publication without the necessity for editing by the Committee. Essays must be received by the Secretary of the College on or before May 1, 1928. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. The successful essay remains in the possession of the College. Other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1927 has been awarded to Dr. Emil Bogen, of Cincinnatti, Ohio, for an essay entitled: "Drunkenness."

Obituary.

WILLIAM MOORE.

THE memory of Dr. William Moore who passed away recently in Melbourne full of years and rich in honour, will be cherished by several generations of medical practitioners. His thoroughness, his attention to detail and his concern for the patient provoked their admiration; his sincerity, his courtesy and his kindliness both as teacher and friend called forth their affection. His place will not easily be filled.

William Moore was born on July 30, 1859. His father was a Baptist minister and throughout his life he trod unobtrusively a pathway which has father had taken before him. He was educated first of all at the Petrie Terrace School and subsequently at the Normal School, Brisbane. He gained a scholarship to the Brisbane Grammar School which he entered in August, 1873. Here he won the Trustees' Extension Scholarship in 1876 and two years later passed the Senior Public Examination of the University of Sydney. In the same year he became a student of medicine at the Melbourne University. His course was brilliant. In his second year he gained first class honours and an exhibition and was first in his year. In his third year he achieved second class honours, passed top of his year and gained another exhibition. In his fourth year he was unfortunate; he contracted measles at the time of his examination, but all the same passed with third class honours. In his fifth and final year he gained first class honours and an exhibition and headed the lists. Two years later, in 1885, he qualified for the degree of Doctor of Medicine and Master of Surgery of his University. His career, begun so brilliantly, was continued with uninterrupted success. He was appointed Resident Medical Officer in Melbourne Hospital on April 15, 1883, and became a Demonstrator in Anatomy at Melbourne University. He received the appointment of Surgeon for Skin Diseases on October 6, 1885, and became Surgeon to Out-patients in August, 1887. His appointment to the full staff as Surgeon was made on August 5, 1902, and he resigned this office on October 6, 1910, to become Consulting Surgeon. He was a member of the Melbourne Hospital Committee from 1904 to 1925 and of the House Committee from 1911 to 1925. His private practice in Melbourne grew steadily and he gained a reputation as a sound and reliable surgeon. He was in consequence sought freely in consultation by his brother practitioners.

William Moore was not unmindful of his responsibilities in regard to the dissemination of knowledge which he had gained at first hand. His contributions to the *Intercolonial Medical Journal of Australia* were numerous and gave evidence of the soundness of his observations and of the fearless way in which he carried those convictions into practice. He made several contributions on the subject of hydatid disease. He reported at an early date the performance of prostatectomy under spinal anæsthesia. He wrote about the operative treatment of puerperal pyæmia. He described operations performed for the eradication of malignant disease. In 1889 he issued a pamphlet on plastic surgery and illustrated it with cases which he had previously reported. In 1912 he published another pamphlet entitled: "Notes on Some American and English Clinics." Another pamphlet was issued by him in 1905 on a series of interesting surgical cases. The conditions described included gunshot wounds, perforated gastric ulcer, transposed viscera and popliteal aneurysm. In 1896 he wrote about the operative treatment of varicose veins with special reference to Trendelenburg's operation and in the same year he discussed the operation for strangulated inguinal hernia in relation to recent advances in surgery. For many years he acted as librarian for the Victorian Branch of the British Medical Association. During the war he did a great deal of surgical

work of the highest order at Number 5 Australian General Hospital at St. Kilda Road and later at Caulfield.

Sport of all kinds particularly cricket attracted William Moore and for many years he captained and managed "The Medicos" cricket team which every year played the Army, Melbourne Cricket Club, The Savage Club and the various public schools. He was interested in all affairs of the Baptist denomination. Almost from his first arrival from Brisbane he was a member of the Collins Street Baptist Church. He was President of the Baptist Theological College. He was the first President of Carey Baptist Grammar School and he assisted the school very materially in its initial stages. The important part which he played in the Melbourne Hospital and its management is fully described in the letters of Sir George Syme and Dr. Zwar.

Sir George Syme writes:

It was my privilege to be very closely associated with William Moore during the whole of his career in Melbourne. We were students together at the Medical School and fellow residents at the Melbourne Hospital. In those early days was apparent that tenacity of purpose which characterized him throughout life. Whatever he did in work or sport was done thoroughly and conscientiously. In the dissecting room, for instance, he would laboriously and deftly display structures that most students never tried to dissect out. At cricket and tennis he was equally keen and persistent and excelled in consequence, keeping up his activities in both to the very last.

At the Melbourne Hospital Moore was a dresser and resident surgeon to Mr. E. M. James who was very greatly impressed with Moore's capabilities, attainments and character. When Moore who married early started in practice, he took a small house next to Mr. James who helped him in every possible way, and when he retired persuaded Moore to take over his house and with it a good deal of his extensive practice. When I returned to Melbourne after a visit to Europe, I became Moore's colleague in various capacities. We were codemonstrators in anatomy and coeditors of the *Australian Medical Journal* and we were elected on the same day to the out-patient surgical staff of the Melbourne Hospital. Later he again became a colleague in the in-patient surgical staff at Saint Vincent's Hospital.

While on the out-patient staff, owing to the frequent and long illnesses of Dr. Beaney, to whom Moore corresponded, he was for long periods acting as in-patient surgeon and took the fullest advantage of his opportunities. He was most assiduous in his attendance and would visit his patients early in the morning and late at night, personally carrying out every detail of their treatment and watching every phase of their condition.

Moore had exceptional powers of observation and a great capacity for accurate reasoning from what he observed. His professional opinion was of great value and was widely sought. As an operator he was remarkably skilful and precise. All his operations were carefully planned, every manipulation was deliberately performed and exactly achieved its intention. He gave special attention to the conservative surgery of injured limbs and excelled in plastic surgery of all kinds. As surgeon to Number 11 Australian General Hospital during and after the war, this special skill was of inestimable benefit to the returned wounded and maimed soldiers. I was again his colleague at Number 11 and can testify to the splendid reparative work Moore did there.

Throughout his career Moore was devoted to the interests of the Melbourne Hospital. He early became convinced that the system of electing the honorary staff by the votes of the subscribers was not only bad in principle but prejudicial to the work of the staff. With characteristic pertinacity he set to work to get the system altered and although the difficulties seemed almost insuperable, he finally succeeded. Later he became a member of the Committe of Management and gave most valuable service in that capacity. He held very decided views on hospital administration, particularly that hospitals should be reserved entirely for the necessitous sick and injured and that no payments should be taken from patients. He was largely responsible for the resolutions to that effect carried by the Australasian Medical Congress. Moore was for many years an active member of the committee of the Medical Society of Victoria and read many papers before that body covering a wide field of surgery. Both in writing and speaking he was lucid, logical and dogmatic. He never seemed to have doubts about anything, whether in surgery, hospital administration, cricket, politics or religion. We often differed, but nothing ever broke the harmony of our friendly relations. One always recognized the absolute sincerity of his views and actions.

Both his father and his father-in-law were ministers of religion and Moore himself was sincerely religious, though he never obtruded his convictions. He was a total abstainer from alcohol and tobacco, dieted carefully, took a great deal of physical exercise and tried in every possible way to keep fit. He might have been expected to live and work for many years. His sudden death from an accidental infection had been a great shock to his mourning friends and the profession and the community have suffered a loss it is difficult to realize. He set up an ideal of perfection in all he undertook and strove to attain it with dogged determination.

Men with his ideals of service and righteousness of life can ill be spared, but William Moore had left a record of splendid achievement and noble example that will serve as an inspiration to those who remain and those who follow.

Mr. B. T. Zwar writes:

The news of Mr. William Moore's death, which reached me at Colombo, came as a painful shock. It has been one of my privileges to have been associated with him and his work for more than twenty years. There are few who have had better opportunities of learning to appreciate the value and abiding nature of the services William Moore has rendered to the medical profession and to the community in the State of Victoria.

My memory takes me to the days of my residentship at the Melbourne Hospital in 1900-1901, when William Moore was acting for the late Sir Thomas Fitzgerald. The skill and enthusiasm with which he carried out a long list of operations and his attention to detail were as remarkable as the individual attention and care which he bestowed upon his patients in the postoperative treatment. Few men ever gave more devoted and loyal service to their hospitals than William Moore. Even though he had been operating late at night, he often was in the wards again before 7 a.m. In those days and later, it was generally considered safe to set our watches by the regularity of his daily visits.

William Moore was a master of surgical technique; he was a dexterous and daring operator, but never reckless. It was his custom before commencing any important operation to consider and work out all its details. Once he had commenced the operation, these details were carried out without hesitation and in an unerring manner. Blunt dissection had no place in his technique; gentle handling and cutting with a sharp scalpel were its characteristics. His dissections for malignant glands of the neck and for malignant breasts were works of art, beautifully carried out. The same is true of his plastic surgery.

In the postoperative treatment of patients I have known no one who worked harder for their welfare, nor have I known any other surgeon who had more reason to feel that everything which was in his power to do, had been done.

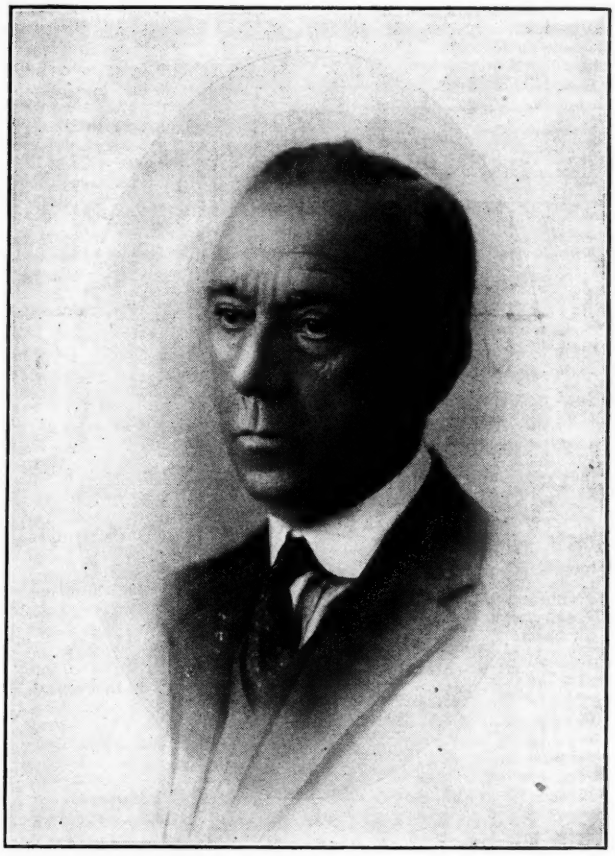
William Moore did tremendous service to uphold the interests and the dignity of our profession. The present method of electing the medical staffs of our metropolitan public hospitals is an outcome of his successful efforts to effect a reform in the management of the Melbourne Hospital. With his enthusiastic colleague, Dr. W. R. Boyd and other coworkers he led a campaign of reform the details of which had been considered as carefully as the steps of an important surgical operation.

William Moore was a man of unblemished character, high ideals and great attainments. Throughout his life he was a good all-round sportsman. Cycling, tennis and cricket

were followed with that enthusiasm which characterized all his undertakings. He was a man of firm convictions, for he applied his faculty of considering a subject from every view point to all problems and once his mind was made up he adhered to his conviction with great tenacity; he had excellent reasons for doing so. I worked with him in various capacities for over twenty years and the memories of our collaborations and friendship are amongst the happiest in my life.

William Moore is survived by his widow, four daughters and one son who is a member of the medical profession. They have our sincere sympathy in their sudden loss. I mourn the loss of a sincere and trusted friend; our profession the loss of a brilliant and accomplished member.

Dr. R. R. Stawell writes:



It is a grave privilege for me, as one of his oldest friends, to write an appreciation of the late Dr. William Moore's professional work, public service and personal character. My first acquaintance with Dr. Moore dates back over forty years, for though he was only a few years my senior, he was then my teacher in certain subjects, both at the University and at the Melbourne Hospital. In those days he was one of the demonstrators of anatomy and one of the surgeons to the out-patient department at the Melbourne Hospital. We all recognized even then his great intellectual capacity and special knowledge, his earnestness and steadfastness of character and his manipulative skill. So earnest was he in his own work, that he was intolerant of all bad work or half-hearted work and he was suspicious of spasmodic and irregular efforts at work among his students; good work, he knew, could only come from steady and well directed effort.

From that time, forty years ago, I watched him, by his own unaided efforts, by his own ability and industry win to a position in the front rank of surgeons in this community. His success is a splendid encouragement to any young graduate handicapped by difficulties and straitened means in early professional life, for Dr. William Moore triumphed over just these things. Though he was of the first rank in general surgery, Dr. Moore made a special study of plastic surgery. His skill and judgement in the treatment and repair of grave and minor injuries to the hand and limbs were remarkable and it was strikingly interesting to hear him discuss these problems with Professor Kanavel during the post-graduate lectures only a few weeks ago.

Dr. Moore's success in dealing with the difficult problems of conservative and plastic surgery in grave injuries led to a long period of public service of the greatest value; for the military medical authorities determined very wisely that though Dr. Moore wished to serve overseas, he should be retained in Melbourne at one of the base hospitals for special work in plastic surgery. For years he steadfastly and unobtrusively carried on his splendid work for injured soldiers. Apart from this public service, given during and after the war, Dr. Moore gave a large amount of his time to hospital administration and hospital reform. Undeterred by great difficulties, he succeeded in doing the task he set himself to do. He imbued a new spirit into hospital work here in Melbourne.

These things, a useful professional life and fine public service, would not have been possible to any man without the driving force of an earnest and steadfast character within him and this kind of character Dr. William Moore possessed. In work and play he was always earnest and self-reliant and even independent minded. This independent mindedness led him to live a reserved type of life, somewhat cut off from the general life of the younger members of the medical profession. He resigned the office of Honorary Surgeon at the Melbourne Hospital at a comparatively early age, for he had determined to give up that work when he could not give to it a full amount of time and energy. A regrettable disagreement with a decision of the Council of the Victorian Branch of the British Medical Association led him to resign from that body; though it was a matter of congratulation to his friends that later in his life he rejoined the Association and looked forward to helping his fellows in matters of surgical importance.

Apart from his professional work, he took a great interest in all manly and healthy sport and for many years he kept together, as it were, a cricket team of medical men and university graduates.

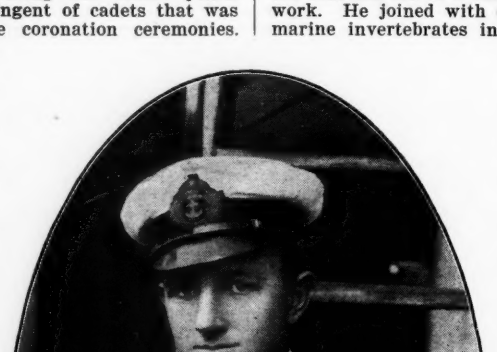
Of Dr. Moore it can be said that he always did what he considered right, as it was given him to see the right; he did this not impetuously, but thoughtfully and in scorn of consequences and surely of such is the salt of the earth.

WILLIAM EDWARD JOHN PARADICE.

THE tragedy of November 3, 1927, left inconsolable grief in thirty-seven homes, wrought havoc with the nervous systems of a large number of persons who were involved in the accident and caused a deep and painful impression throughout the whole of Australia. It has dealt no severer blow than that inflicted by the loss of William Edward John Paradice, a young scientist who had established his right to recognition as a man of unusual ability in the medical and biological world and a student of brilliant attainment. We mourn his loss all the more because this promising young man was so full of vigour and energy up to the moment of his death. Those who came into intimate personal contact with William Edward John Paradice fell beneath the spell of his charming, refreshing

personality and became infected with his optimism and healthy mentality. It seems impossible that this valuable young life has been blotted out in the course of the sudden happenings of a few seconds.

William Edward John Paradice was born at Croydon, New South Wales, on February 21, 1897. He was the son of Mr. W. H. Paradice, A.I.A., the Sub-Accountant of the Australian Mutual Provident Society. He spent his early youth in Sydney and in due course went to the Fort Street Boys' High School, where he was beloved by his school mates and by his teachers. He was particularly successful in class and outstripped the others at his work. He discovered that he had a steady hand and an accurate eye and displayed both as a rifle shot. He obtained the championship on the ranges during his school years. In 1911 he was one of the contingent of cadets that was sent to England to attend the coronation ceremonies. While in the old country he seized the opportunity of displaying his skill with the rifle at Bisley. In 1914 he left school and shortly after he entered the University of Sydney to study medicine. He was a contemporary of the late John Irvine Hunter and it may be stated that his year in the Medical School was one of unusual attainment. Throughout the course he kept well to the fore. He took a great interest in natural history and particularly in that branch of zoology that deals with fishes. In 1920 he graduated in medicine and surgery and immediately obtained appointments as resident medical officer at the Balmain District Hospital, the Renwick Hospital for Children and the Royal Hospital for Women in succession. At each hospital he acquired fresh knowledge and won fresh laurels. In August 1, 1921, he applied for and gained a commission in the Royal Australian Navy. At first he was attached to the *Geranium*. Two years later Commander H. T. Bennett, D.S.O., R.N., undertook a survey of northern Queensland and the Northern Territory and Surgeon-Lieutenant Paradice accompanied him. His prowess as a zoologist received its first real stimulus at this time. Paradice made full use of his opportunities. During the survey work of the expedition he gathered a valuable collection of marine animals. This collection was handed to the Australian Museum where it can be seen by those interested in the natural history of Australia. He participated in the discovery of a large fossil *Ichthyosaurus*, an extinct marine reptile with curious fins that has been the subject of scientific controversy during recent years in Europe. At this time he was an active member of the Royal Zoological Society of New South Wales. In 1927 he published the result of his studies in Northern Territory with Mr. Gilbert P. Whitley in the *Memoirs of the Queensland Museum*. The *Geranium* returned to Sydney in 1924. Prior to his return he contributed a paper to the Australasian Medical Congress (British Medical Association), first session, Melbourne, 1923. The paper was read by Surgeon-Commander Eames. The reports of three highly interesting clinical cases supported by pathological investigations revealed his power of accurate observation and the keenness with which he sought out of his daily experience something of scientific importance. Shortly after he was elected a member of the Committee of the Royal Zoological Society of New South Wales and later became Secretary and Vice-President of the Marine Section of this society. In August, 1926, he obtained his promotion to the rank of Surgeon-Lieutenant-Commander, having been recommended for accelerated promotion on account of his scientific achievements and his admirable service record. At this time he was attached to His Majesty's Royal Australian Ship *Penguin* at Garden Island. He was placed in charge of the medical service at Garden Island and he also served as a medical officer at the Naval wing of the Prince of Wales's Hospital, Randwick. In January, 1925, he married Miss Kitty Houston and shortly after he took up his abode at Vaucluse. In 1926 he was appointed honorary correspondent to the Australian Museum. His association with the Museum led to a substantial extension of his scientific work. He joined with other zoologists in a study of the marine invertebrates in connexion with a survey of the mud flats at Gunnamatta Bay, New South Wales. Still later he extended his researches to the commoner fishes of Port Jackson. One variety of a bryozoon has been named after him. Mention should also be made of his membership of the Microscopical Society of New South Wales. He took a great interest in this body and worked hard for it. At the time of his death he held the position of its president.



His medical work has been of the soundest description. When opportunity seemed to be lacking, he sought it and succeeded in finding it. He submitted a first class paper to the second session of the Australasian Medical Congress at Dunedin in February of the present year. His writings on medical and zoological subjects were full of thoughtful ideas, delightful to read and worthy of consideration.

Apart from his outlook on to the world of science, he carried his enthusiasm into his garden, behind his camera and into his home. Unconsciously he spread the contagion of his happy and genial spirit. In the Royal Australian Navy he won love from the ratings as well as from his senior officers. Among his colleagues in the medical profession he was a universal favourite. He was his father's pride and his friends' delight. The medical profession shares the grief of his young wife and her baby boy in the loss of one who can ill be spared.

Medical Societies.

THE MELBOURNE PÆDIATRIC SOCIETY.

A MEETING OF THE MELBOURNE PÆDIATRIC SOCIETY was held at the Children's Hospital, Melbourne, on October 12, 1927, DR. W. W. MCLAREN, the President, in the chair.

Hydronephrosis.

DR. W. W. MCLAREN presented a child, aged nine years, with a swelling of the left renal region which had apparently been first noticed by the parents of the boy shortly after a fall some weeks previously. The urine was found to contain a few pus cells only, but no gross

bacilluria was present. A pyelogram revealed an extremely dilated left ureter and a large hydronephrosis of the left kidney.

Dr. McLaren asked if there was any risk of injecting too much bromide solution for the pyelography.

MR. C. H. OSBORN stated that aspiration after insertion of the ureteric catheter gave some indication of the capacity of the renal pelvis.

MR. M. A. STEWART advocated exploratory operation.

Jacksonian Epilepsy.

DR. A. P. DERHAM showed a boy, aged three years, suffering from epilepsy of Jacksonian type, whom he had had under observation since the age of about four months. At about six months of age the child had developed breath-holding attacks at frequent intervals which became more severe and began to take the form of epileptic convulsions beginning in the right side of the face and arm and becoming generalized.

At this time he had been noticed to have a small depression over his left frontal bone and inquiry from his mother had revealed that she had had a difficult forceps delivery, with difficulty in resuscitating the babe. Mr. Upjohn had trephined the left fronto-parietal region and had found that a large area of the subjacent cerebral cortex was replaced by a blood cyst probably caused by a birth injury. A decompression opening had been left and the scalp sutured.

The number and severity of the fits had decreased, but only for a short time and recourse had been had to large doses of bromides, chloral hydrate and later "Luminal" with only temporary improvement. These drugs had made the child sleepy and even 0·27 gramme (four and a half grains) of "Luminal" a day at the age of one year had not prevented him from having as many as seven fits in twenty-four hours. "Luminal" had been stopped and with it the fits had also stopped for several days and had only gradually returned to an average of about two a day. The fits still usually followed crying and could often be prevented by pacifying the child at the critical moment. Considering his cerebral condition the child was well developed and apparently intelligent for his age. strong, attractive and apparently intelligent for his age.

Dr. Derham showed the patient as an illustration of the clinical results of gross brain lesion and of the paradoxical action of such a well tried drug as "Luminal."

Laryngeal Papilloma.

DR. DERHAM'S second patient was a boy, aged fifteen years, who had been shown twice before. He had an unusual cardiac irregularity, probably congenital, and an almost complete aphonia due to a papilloma growing from the anterior end of his left vocal cord. This had been removed by Dr. Clive Eadie two weeks previously and already phonation had improved to such an extent that there seemed to be some promise of a normal speaking voice.

Congenital Heart Disease with Rheumatic Infection.

DR. J. W. GRIEVE presented a boy, aged ten years, suffering from a patent *ductus arteriosus* with a superimposed rheumatic infection. The electrocardiograph tracings of this patient were explained by Dr. H. Lawrence Stokes. This patient had developed numerous nodules in various parts of the body since his admission to hospital.

Hare Lip and Cleft Palate.

DR. M. A. STEWART asked for suggestions as to treatment for a girl, aged twelve years, with a complete double hare lip and cleft palate and with a large premaxilla with teeth attached. An operation on the lip had been performed in the country in infancy, but without success and nothing had been done since.

DR. H. DOUGLAS STEPHENS said that he would operate on the palate first and then the lip. Under no circumstances would he remove the premaxilla and prolabium.

Osteomyelitis.

Dr. Stewart's second patient was a boy, aged eleven years, who had been admitted to hospital desperately ill with osteomyelitis of the right tibia. The child had been so seriously ill that the only alternatives seemed to be a diaphysectomy or amputation. Diaphysectomy had been performed and the patient was being shown eight months later to illustrate the extensive regeneration of bone which had taken place. This patient had been ill for three days prior to admission to hospital.

Cold Abscess.

DR. CHARLES H. OSBORN presented a boy, aged eleven years, with a large swelling on the right side of the back opposite the scapular spine. It was clinically a typical cold abscess, but the primary focus was indefinite as the spinal movements were unimpaired and after an X ray examination a report had been received that the spine and ribs manifested no focus of infection. There was a history of injury prior to the appearance of the swelling.

DR. H. DOUGLAS STEPHENS said that with the history of trauma a suppurating hæmatoma had to be considered, but he agreed with Dr. Osborn that it was a cold abscess. There was so little disability that he would recommend conservative treatment and aspiration.

DR. H. C. COLVILLE suggested that the abscess might have resulted from an intrathoracic collection.

DR. MERVYN STEWART said that such a swelling might originate from a tuberculous periostitis of a rib.

Fistula Following Gummatous Ulcer.

DR. ROBERT SOUTHBY demonstrated a girl, aged nine years, who had suffered from a large gummatous ulceration of the right submaxillary region following the breaking down of a mass of glands in this region. This had occurred eighteen months previously and the serum of the child was found to react strongly to the Wassermann test. The ulcer had rapidly cicatrized under intense antisyphilitic treatment, but the Wassermann reaction was still obtained. A small sinus persisted as a direct communication between the skin of the submaxillary region and the oral cavity. A gummatous enlargement of the submaxillary glands with deep ulceration was rather uncommon in a child, but the resulting fistula was regarded as a unique complication.

Tuberculosis.

DR. REGINALD WEBSTER briefly outlined the research he was carrying out with regard to tuberculous infections. He described the technique of differentiating bovine from human infection and showed some excellent cultures of both types of bacillus.

DR. H. DOUGLAS STEPHENS said that from the clinical aspect he regarded the majority of tuberculous infections in Australia as of human type.

DR. BELL FERGUSON commented on the fact that some forms of cervical gland tuberculosis responded to tuberculin treatment, whereas others did not. He suggested that this might be due to the fact that some were of human and others of bovine type.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING OF THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA was held at the University of Adelaide on November 4, 1927.

Colloidal Lead Treatment of Cancer.

DR. L. V. BULL opened the discussion on colloidal lead treatment of cancer by giving a brief summary of the position as stated at the last Medical Congress in the United Kingdom.

DR. T. G. SLEEMAN reported in detail on the patients treated under the Colloid Lead Treatment Committee at the Adelaide Hospital. This work was the outcome of beginnings made by Dr. Brian Swift who came direct from Dr. Blair Bell's Research School in Liverpool. Dr. Sleeman's report was not reassuring, all patients treated

had died. The condition of all patients was considered hopeless from the viewpoint of other treatment at the inception of the lead treatment.

DR. B. SWIFT, who was unable to publish results in the terms of his agreement with Dr. Blair Bell, adopted a more hopeful attitude. He considered that the Liverpool cases were too striking to be lightly passed over and he gave an account of the effects of the lead treatment in producing a severe reaction such as in many cases quite decided patients against continuing with treatment. In the Adelaide experience such a reaction had never been noted, even when the largest dosage was employed. He considered that the colloidal lead was in some way different from that used at Liverpool, despite the close adherence to Lewis's details of preparation.

DR. PENNYCUICK, who had prepared the lead gave an account of the method. He stated that he had in his possession a colloidal lead suspension that had stood without precipitation for nine months. This was not the experience of Lewis and his coworkers. Perhaps the efficiency of the lead depended on the presense of soluble lead salts in association.

The discussion which followed was begun by PROFESSOR T. B. ROBERTSON, who recounted the history of the colloid metal treatment.

The pharmacology of colloid lead was considered by PROFESSOR C. S. HICKS to be due to ionic lead arising from the colloid metal which by its local concentration for physico-chemical reasons in the malignant tissue formed a source of supply.

Dr. Pennycuick concurred in this opinion.

Professor Robertson also referred to recent work done at Sydney University in which monochromatic X rays had been investigated as to their action on embryonic tissue. It was found that the effect was restricted to certain wave lengths.

DR. W. RAY pointed out that this might have some connexion with the fact that irradiation of superficial malignant tissues by the older gas tubes which gave rise to a very wide range of wave length, was more effective than irradiation by means of the modern Coolidge tube which gave a narrower range of wave length.

The question of saturating the growth with colloidal metal prior to irradiation in order that the characteristic X rays might produce their effect, was also discussed.

The College of Surgeons of Australasia.

WE have been requested by the Executive Committee of the College of Surgeons of Australasia to publish the names of the Founders and of the Foundation Fellows of the College and a notice of the first annual meeting of Fellows.

New South Wales.

A. J. Brady (deceased), William Chisholm, C. E. Corlette, Sir Charles Clubbe, R. Gordon Craig, Thomas Fiaschi (deceased), Sir Alexander MacCormick, Frank Antill Pockley, F. P. Sandes, E. T. Thring, Ralph Worrall.

Victoria.

Sir James Barrett, H. B. Devine, A. L. Kenny, B. Kilvington, Felix Meyer, Reginald Morrison, D. Murray Morton, R. Hamilton Russell, Sir George Syme, B. T. Zwar.

New Zealand.

H. Acland, Sir Louis Barnett, Sir Lindo Ferguson, Sir Donald McGavin, Carrick Robertson, D. S. Wylie.

South Australia.

A. M. Cudmore, Anstey Giles, A. M. Morgan, H. S. Newland, T. G. Wilson.

Queensland.

Donald Cameron, G. P. Dixon, J. Lockhart Gibson, E. S. Jackson, W. N. Robertson.

FOUNDATION FELLOWS.

New South Wales.

Abbott, G. H.
Allen, Hugh G.
Armstrong, George
Aspinall, Archie
Barrington, Fourness
Bell, George
Binney, E. H. (deceased)
Bowker, Cedric
Brearley, E. A.
Burfitt, W. F.
Colvin, A. E.
Craig, F. Brown
Dansey, St. John W.
D'Arcy, Constance E.
Davies, Reginald
D'Ombrain, E. A.
Edye, B. T.
Ewing, Thomas
Foreman, J.
Glissan, D. J.
Godsall, Robert S.
Halliday, J. C.
Harris, S. Harry
Hipsley, P. L.
Howse, The Honourable Sir Neville, V.C., M.P.
Isbister, J. L. T.
Lipscomb, T. W.
MacLeod, Gordon
McKelvey, John L.
Mansfield, W. C.
Marks, Herbert
Marsh, H. S.
Morton, John
Page, The Honourable E. C. G., M.P.
Poate, Hugh R. G.
Pockley, Guy
Read, Clarence
Royle, N. D.
Schlink, Herbert H.
Scot-Skirving, R.
Shepherd, Cyril
Smith, E. Temple
Stacy, H. S.
Storey, J. Colvin
Thomas, David
Teece, Lennox
Wade, R. B.
Windeyer, Professor J. C.

Victoria.

Anderson, J. Ringland
Boyd, Thomas H.
Brown, R. C.
Buchanan, James S.
Cuscaden, Sir George
Downes, Rupert M.
Ewing, S. A.
Fetherston, R. H.
Fowler, Robert
Gault, E. L.
Gordon, John
Hooper, J. W. Dunbar
Hughes, W. Kent
Hurley, T. E. Victor
Lambert, T. E. L.
Lloyd, H. Cairns
Lynch, M. E.
Maclure, Fay
Mitchell, Leonard J. C.
Moore, W.
Morton, F. W. W.
Murphy, Thomas A.
McArthur, A. Norman
Newman, Francis A.
Newton, Alan
Orr, W. F.
Quick, Balcombe
Rudall, J. F.
Ryan, Edward
Sawrey, E. R.
Smith, Julian A. R.
Stephens, H. Douglas
Upjohn, W. G. D.
Webb, J. Ramsay
Webster, Percy S.
White, Edward R.

New Zealand.

Aickin, Casement G.
Batchelor, F. S.
Begg, R. Campbell
Bell, F. Gordon
Beveridge, A. W.
Carswell, W. E.
Collins, William E.
Douglas, Alexander
Douglas, Hugh
Elliott, J. S.
Fairclough, W. A.
Fenwick, George E. O.
Foster, P. Stanley
Gibbs, H. E.
Guthrie, John
Hall, A. J.
Harty, G. W.
Herbert, W. E.
Hislop, Walter J. H.
Hogg, R. H.
Home, George
Leahy, John P. D.

FOUNDATION FELLOWS (*Continued*).

MacGibbon, T. Arthur
MacKenzie, Kenneth
Marchant, E. L.
Mill, Thomas
Neil, James Hardie
Newlands, William
O'Neill, Eugene
Pitts, A. Gentry
Purchas, A. Challinor
Riley, F. R.
Sandston, Alfred C.
Scott, William G.
Smith, H. Hardwick
Somerville, Joseph E. W.
Stevenson, John
Stout, T. D. M.
Talbot, A. G.
Talbot, L. S.
Unwin, William H.
White, James Renfrew
Wilson, H. M.
Young, James
Young, William

South Australia.

Bonnin, J. A.
Brown, Edgar
Corbin, John
Formby, Henry H.
Gilbert, Henry
Jay, Hubert M.
Lynch, Arthur F.
Powell, Henry Arthur
Pulleine, Robert H.
Riddell, James
Rischbieth, Harold
Scott, Malcolm L.
Shorney, H. F.
Smeaton, Bronte
Verco, William A.

Queensland.

Ahern, Edward D.
Cooper, Lilian V.
Hardie, Sir David
Love, Wilton W. R.
Marks, Alexander H.
Marks, Charles F.
Meek, Robert A.
McDonnell, Æneas J.
McLean, John B.
Ross, Thomas G.
Thompson, Robert
Voss, F. H. Vivian

Tasmania.

Barr, J. S.
Hogg, G. H.
Sweetnam, H. W.

Western Australia.

Ambrose, Theodore
Gill, Frank Llewellyn
Gill, Hubert Baldwin
Gillespie, Leslie Thompson
Gray, Herbert John
Paton, Duncan Davis

Tasmania.

D. H. E. Lines, John Ramsay.

Western Australia.

F. A. Hadley, W. Trethowan.

NOTICE OF ANNUAL MEETING.

The first annual meeting of Fellows of the College of Surgeons of Australasia will be held in the new hall at Canberra, Federal Capital Territory, on March 31, 1928. All Fellows of the College are most earnestly invited to attend. The Chief Commissioner of the Federal Capital Territory has reserved the necessary accommodation at the Hotel Canberra (£1 2s. 6d. a day, £7 a week), at the Hotel Kurrajong (17s. 6d. a day, £5 a week) and at the Hotel Acton (17s. 6d. a day, £5 a week). Fellows who intend to be present (and a very full attendance is expected), are requested in their own interest to write at once to the Secretariat, Canberra, Federal Capital Territory, to engage the accommodation they may require. It will probably not be convenient that Fellows should arrive in Canberra before the forenoon of March 31, on account of difficulties of accommodation. Those travelling by motor car could arrange, if necessary, for accommodation at Queanbeyan the night before or at some other town in New South Wales within short distance of Canberra. There is considerable accommodation for motor cars in Canberra. Otherwise, the trains run into Eastlake (suburb of Canberra) from the main Melbourne and Sydney line. Passengers may enter sleeping cars on the express trains at Sydney and Albury and travel in the same car to Canberra without change. The sessions on March 31, 1928, will last from 2.30 to 5.30 p.m. and from 8 p.m. to 11 p.m.; April 1, 1928, will be a free day; sessions will be resumed on April 2 and April 3, 1928, on each day from 9.30 a.m. to 12.30 p.m., from 2.30 p.m. to 5.30 p.m. and from 8 p.m. to 11 p.m. The first meeting will be opened by His Excellency the Governor-General and will be attended by His Excellency Sir John Goodwin, Governor of Queensland, the first Honorary Fellow of the College. At this meeting papers on the history of the Royal Colleges of Surgeons of England, Ireland and Edinburgh and of the American College of Surgeons will be read. The time at the other sessions will be occupied by the business of the College according to the by-laws and with the reading and discussion of papers dealing with plastic surgery of the human body. There will also be a debate on the hospital policy of the College and on the constitution of the College as defined in By-law 4 (*e*).

This is a preliminary notice to Fellows of the College. Circulars will be issued in due course with further particulars.

Correspondence.

THE COLLEGE OF SURGEONS OF AUSTRALASIA.

SIR: "Things will have their first or second Agitation; if they be not tossed upon the Arguments of Counsell, they will be tossed upon the Waves of Fortune and be full of Inconstantcy, doing and undoing, like the Reeling of a drunken Man."

The above quotation appears to apply to the College of Surgeons of Australasia.

Is it too late for the Executive of the College to consider the advice of the medical profession of Australasia? "The wisest Princes need not think it any diminution to their Greatnesse, or derogation to their Sufficiency, to rely upon Counsell."

The question of "public advertisement" has been raised by a "Queensland practitioner."

Will Sir George Syme, Director of the College of Surgeons, take steps as Sir George Syme, Chairman of the Federal Committee, to cause the rules governing ethical procedure to be altered in order to justify public advertisement by fellows of the College who are also members of the British Medical Association?

It is well recognized that many practitioners, including those in "high places," consider the rules governing ethical procedure are in need of alteration.

Yours, etc.,

E. S. MEYERS, M.B.

Vulture Street, South Brisbane.
November 26, 1927.

SIR: "Graduate" is mistaken about the Master of Surgery degree in the University of Sydney. He has assumed that from the greater number of lines given to the subject of formal examination in that by-law, this is the most important point, and a governing necessity. The higher surgical degree at the University, up till recently, has been the M.D., and I am not sure that those who graduated before the change are henceforth barred from that as a surgical higher degree. But that does not matter greatly in the present discussion. In connexion with the M.D. degree it has been the custom to put the thesis in the place of first importance, and a thesis showing meritorious original work has been the crucial test of quality in the candidate. This is a point of view worthy of a University, and a realization of one of its highest functions, the

emancipation of the mind and the cultivation of the spirit of inquiry. So far as my experience goes (and I am a member of the Faculty), the clause providing that "the Faculty may by resolution exempt a candidate from any part of the examination" is fully alive, and it is the custom to consider it regularly in connexion with every thesis. The Faculty has always exercised this power of discretion when a thesis has shown good work and good thinking. If the thesis has not been quite sufficient by itself, it has been the custom to accept it subject to the candidate's passing an examination, and what that examination is to consist of is also specially decided. If the thesis is not up to a sufficiently good standard, the candidate has always been rejected, and no examination has been allowed. "Graduate" seems annoyed by my use of the term "examination specialist." Yet experience has shown that a man may have led all others in the ordinary kind of examinations, and fail to pass the higher test. The converse also happens. Men who have not shone brilliantly in the ordinary examinations have given evidence of high capacity under the different kind of test. I do not mean that there is any antithesis. Some men are gifted so as not only to possess a facile memory, but also an original and inquiring mind.

Now, all this may seem to have no bearing on the new higher surgical degree. But no one who knows the Faculty of Medicine will think so. It is obvious that the requirements have been modelled, *mutatis mutandis*, on those of the doctorate. A thesis of similar type is required, and exactly the same clause about exemption from examination is inserted. There have, as yet, been no Masters of Surgery under the new by-laws, but though I am speaking without any authority, I think I am safe in saying that the Faculty of Medicine is not likely to make a distinction in practice between the M.D. and M.S. candidates unless some new direction to that effect is made by the Senate. I have no doubt at all that the thesis will still be regarded as the crucial part of the test. If the candidate can show that he has actually done good work, and has given indications of a suitable mental quality, he will be on the same level as the candidate for the doctorate of medicine. First things will continue to be put first. But if "Graduate" and those who think with him have their way, there will be a radical change, a change that they think an improvement, but those who greatly value some things that "Graduate" thinks of comparatively little worth will be very sorry to see it.

"Graduate" next goes on to say that "the fact that most of our graduates who desire a higher degree in surgery, leave Sydney to take the Fellowship of the College of Surgeons of England or Edinburgh in preference to attempting our Master of Surgery in itself speaks volumes." The M.S. as a higher degree is too new for any such experience. Evidently he means the M.D. For a generation the doctorate of medicine has been the higher degree for surgeon and physician alike. It is the degree held by the present Professor of Surgery in the University. And granting that it stands for something different from the F.R.C.S., some of us think that a matter for congratulation. "Graduate's" admission (for such it is) may, indeed, speak volumes, but certainly not to the discredit of the University. And if some ("Graduate" says "most," which is incorrect) young graduates have been deflected to the F.R.C.S. examination, perhaps they have missed something. Perhaps they have not been well advised. I believe in overseas travel and study. But for those who can afford to go, I say without hesitation that one or two years in a research laboratory, or a laboratory and clinic combined, is an incomparably better thing than one or two years at a crammer's, which is what the F.R.C.S. means. Perhaps I may be allowed later on to quote Sir William Osler's opinion on the same question.

Now let us see how "Graduate" views things. The thesis could "be discontinued with advantage." He thinks "it is time for a man to start writing original work when he is in a position to know something about it." I think exactly as "Graduate" does on that point. He should certainly know something about it before starting to write. He must.

I have had much to do with young undergraduates and graduates. I have watched them. There is splendid material. The latent capacity for good original work is far more common in our young graduates than some think. There is fuel there, and it will burn, provided it is lighted. But the latent capacity must be awakened, and awakened while the man is young. There is a "divine contagion" of the spirit in the right environment. There should be some living glow in the teacher, hot enough to kindle the latent power and start it burning of itself. Then the young man will find things. He will find independence, a scientific outlook, and an active imagination. He will find himself different. He will do original work because it is within him to do it, and after he has done it, he will be "in a position to know something about it," and may know more than his teachers. He will, moreover, learn to put his own valuation on some of the stuff that he has been taught from the seat of authority. He will be entitled to.

I spoke of environment. But what sort of environment shall the young man find in "Graduate" and his kind? "Graduate" expresses the dreary opinion that "most of the aspects of surgery have been exhaustively considered and it is difficult for a young graduate to find a field of original work which has not been already dealt with thoroughly."

So that is how "Graduate" views surgery. The prospect is arid. To him, surgery has crystallized out. The field has been thoroughly and exhaustively explored. There is the amount of his vision. He is obviously content to take things as they seem to be or are said to be. Some sort of "withering blight" seems to have paralysed his imagination. Just the same view was expressed (we are informed) by Sir John Erichsen in the first edition of his "Science and Art of Surgery." He told his readers that surgery had practically reached its limit. No further improvements were conceivable, except in minor matters. And this was written when compound fractures had to suffer amputation to prevent almost certain death, when there was no abdominal surgery, no aseptic healing. Yes, "Graduate" has the same outlook and the same complacency and want of imagination as had Erichsen. And "Graduate" is quite consistent as he goes on, for he tells us that "Experience has shown that the practical surgeon is of greater value than any dreamer, not only to the community, but to surgery itself."

Just so. The practical carpenter is of greater value than the "dreamer" who invented every tool he has, every method he uses, and every structure he builds. Is he?

"Graduate" is for the "practical man," not the "dreamer." On what side would "Graduate" have been found fifty years ago, when that foolish dreamer Lister incurred so much ridicule and provoked so much anger amongst the Erichsens?

Here is an extract from a letter with the caption "Antiseptic Surgery" by a correspondent signing himself "Flaneur" in *The Lancet*, January 5, 1878 (page 36):

"The truth is that this is a question in science rather than in surgery, and hence, while eagerly adopted by scientific Germans, and a little grudgingly by the semi-scientific Scotch, the antiseptic doctrine has never been in any degree appreciated or understood by the plodding and practical English surgeon."

Yes, there is the "practical surgeon" to whom "Graduate" refers when he says "experience has shown that the practical surgeon is of greater value than any dreamer."

We know where "Graduate" would have stood fifty years ago.

And after all that experience of the superiority of the practical surgeon, we find our foolish University trying to encourage dreamers!

On the one hand we find the Royal College of Surgeons and its "technical men" with their traditional view of surgery as mainly or merely a craft and of themselves as mainly or merely craftsmen. On the other hand, we have another view that whatever surgery may have been in the past, it is now an integral part of scientific medicine, and that surgeons are physicians, and should be physicians first. "Graduate" wants the system that has produced the "practical English surgeon" (see above); whereas some of us want something that will tend to produce a "physician who operates" and who can be recognized as a practitioner of scientific medicine.

"Graduate" mentions the names of a number of men who have been Fellows of the College of Surgeons, and who have made useful contributions to surgery. These men made their contributions to surgery because they were gifted with the right kind of mind and had the necessary opportunities. They could not have obtained hospital positions without being Fellows. Nevertheless, it is possible to be a Fellow of the Royal College of Surgeons and yet be quite unfit for a surgical position. "Graduate" could have added Watson Cheyne to his list, the man who became Lister's assistant, and who, under Lister's inspiration, played a great part in fighting down the inertia and conservatism that blocked the progress of better surgery in England. Yet Watson Cheyne had great difficulty in getting through his first Fellowship examination. The system nearly blocked him. To borrow "Graduate's" words, that "speaks volumes"—but against the system, not against Watson Cheyne.

But "Graduate" could not have added Hugh Owen Thomas to his list. Probably Thomas could never have passed the Fellowship tests, and he never had the chance of a hospital career. Yet he has taught surgeons and his work lives. I think our University wants to give its Thomases, if there are any, the right to a higher degree without insisting on a formal examination. And I confess I should like to see the conditions of admission to the College of Surgeons of Australasia such that Thomases would be in, not out.

I have now exceeded the space limit that an editor can be expected to tolerate in any one issue, and perhaps I have exhausted the patience of readers. I wonder if Sir William Osler's address could be reprinted in the Journal! It would interest many.

Yours, etc.,

C. E. CORLETTE.

Sydney.
December 3, 1927.

[We are prepared to place at Dr. Corlette's disposal space for the reproduction of extracts from the lecture of William Osler. Editor.]

THE SURGICAL ANATOMY OF THE PELVIC FASCIA.

SIR: In his interesting and instructive paper including original dissections descriptive of the "surgical anatomy of the pelvic fascia," Dr. W. G. Cuscaden refers with marked appreciation to the work of the late Arthur Nyulasy on the cardinal ligaments.

Permit me to express sincere thanks for this appreciation and for the information that Professor U. F. Dixon, editor of the urogenital section of "Cunningham's Anatomy," in the latest edition of that well-known text-book, now describes the transverse ligaments as the cardinal ligaments.

Arthur Nyulasy did not, however, define these ligaments as "fibrous" (which is a misprint), but as musculo-fibrous in structure. He held that their most striking anatomical feature was the large amount of muscle tissue they contain and on this fact based his operation of "looping the cardinal ligaments in uterine prolapse," as described in THE MEDICAL JOURNAL OF AUSTRALIA on April 11, 1914.

Yours, etc.,

FRANK A. NYULASY.

Melbourne.
December 6, 1927.

Naval and Military.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 110, 115, 116, 119 and 122 of October 13, 20 and 27 and November 3 and 10, 1927.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

To be Honorary Colonel.—His Excellency Lieutenant-General Sir T. H. J. C. Goodwin, K.C.B., C.M.G., D.S.O., Governor of the State of Queensland.

First Military District.

Australian Army Medical Corps.

To be Captain (provisionally).—James Bruce Gordon, 16th September, 1927.

Captain N. C. Talbot, M.C., is appointed to command the 11th Field Ambulance and is granted the temporary rank of Major whilst holding such appointment, 1st September, 1927, vice Lieutenant-Colonel F. C. Wooster, D.S.O., who relinquishes the command on 31st August, 1927, and is transferred to the Unattached List, 1st September, 1927.

To be Majors.—Captain D. E. A. Buchanan, Captain (temporary Major), N. C. Talbot, M.C., Captains K. B. Fraser and K. J. G. Wilson, 14th September, 1927; and Captain N. M. Gutteridge, 15th September, 1927.

Award of the Colonial Auxiliary Forces Long Service Medal.

Australian Army Medical Corps.—Major E. S. Meyers.

Second Military District.

Australian Army Medical Corps.

To be Captain (provisionally) supernumerary to the establishment pending absorption.—William Jack Osmond Walker, 21st September, 1927.

To be Lieutenant (provisionally) supernumerary to the establishment pending absorption.—George Lewin Burton, 13th September, 1927.

Australian Army Medical Corps Reserve.

Honorary Captain R. J. Orford is retired, 11th October, 1927.

Third Military District.

Australian Army Medical Corps.

To be Captain (provisionally) supernumerary to the establishment pending absorption.—Reginald Abraham Sicree, 15th September, 1927.

Captain (provisionally) W. H. Ward is brought on the authorized establishment, 20th August, 1927.

The provisional appointment of Captain H. G. Mitchell is confirmed. Captain G. V. Davies, D.S.O., is transferred to the Australian Army Medical Corps Reserve, 14th October, 1927.

Australian Army Medical Corps Reserve.

Major E. Champion is placed upon the Retired List with permission to retain his rank and wear the prescribed uniform, 6th October, 1927.

Fourth Military District.

Australian Army Medical Corps Reserve.

Colonel A. E. Shepherd, C.B.E., D.S.O., V.D., is placed upon the Retired List with permission to retain his rank and wear the prescribed uniform, 2nd October, 1927.

Unattached List.

Captain J. P. O'Brien is transferred to the Australian Army Medical Corps Reserve, 1st November, 1927.

Fifth Military District.

Australian Army Medical Corps.

Captain J. R. Donaldson is appointed to command the 6th Field Hygiene Section, 9th September, 1927. Major A. Juett is transferred to the Australian Army Medical Corps Reserve, 6th September, 1927.

Captain W. S. Cook is appointed (provisionally) from the Reserve of Officers, 3rd Military District, 13th October, 1927.

The resignation of Captain A. N. Jacobs, M.M., of his commission is accepted, 29th September, 1927.

Sixth Military District.

Australian Army Medical Corps.

Major C. G. Thompson is appointed from the Australian Army Medical Corps Reserve with regimental seniority next before Major W. I. Clark, M.C., 1st October, 1927; Lieutenant-Colonel J. A. Newell, V.D., is transferred to the Australian Army Medical Corps Reserve, 1st October, 1927.

Award of the Colonial Auxiliary Forces Officers' Decoration.

Australian Army Medical Corps.—Lieutenant-Colonel H. N. Butler, D.S.O.—(Ex. Min. No. 253.)

Books Received.

SURGERY: ITS PRINCIPLES AND PRACTICE FOR STUDENTS AND PRACTITIONERS, by Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S.; Third Edition, Thoroughly Revised; 1927. Philadelphia: Lea and Febiger. Royal 8vo., pp. 1170 with illustrations. Price: $10·00 net.

BLOOD-PRESSURE: ITS CLINICAL APPLICATIONS, by George William Norris, A.B., M.D., Henry Cuthbert Bazett, M.B., B.Ch. (Oxon), F.R.C.S. (England) and Thomas M. McMillan, A.B., M.D.; Fourth Edition, Thoroughly Revised; 1927. Philadelphia: Lea and Febiger. Royal 8vo., pp. 387 with illustrations. Price $4·50 net.

MODERN MEDICINE: ITS THEORY AND PRACTICE, edited by Sir William Osler, Bart, M.D., F.R.S., Re-edited by Thomas McCrae, M.D., Assisted by Elmer H. Funk, M.D.; Volume V.: Diseases of the Blood *et cetera*; 1927. Philadelphia: Lea and Febiger; Sydney: Angus and Robertson, Limited. Royal 8vo., pp. 948 with illustrations. Price: $9.00 net.

A MANUAL OF MATERICA MEDICA AND PHARMACOLOGY, by David M. R. Culbreth, Ph.G., M.D.; Seventh Edition, Thoroughly Revised; 1927. Lea and Febiger; Royal 8vo., pp. 1046 with illustrations. Price: $8·00 net.

SURGICAL DISEASES OF THE GALL-BLADDER, LIVER AND PANCREAES AND THEIR TREATMENT, by Moses Behrend, A.M., M.D., F.A.C.S.; 1927. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 278, with illustrations. Price: $4.00 net.

FEEDING AND THE NUTRITIONAL DISORDERS IN INFANCY AND CHILDHOOD, by Julius H. Hess, M.D.; Fifth Revised and Enlarged Edition; 1927. Philadelphia: F. A. Davis Company. Demy 8vo., pp. 580, with illustrations. Price: $4.50 net.

FISTULA OF THE ANUS AND RECTUM, by Charles John Drueck, M.D., F.A.C.S.; 1927; Philadelphia: F. A. Davis Company. Demy 8vo., pp. 330, with illustrations. Price: $3.50 net.

MANUAL OF SURGERY FOR STUDENTS AND PRACTITIONERS, by Albert Carless, C.B.E., M.B., M.S. (London), F.R.C.S., and Cecil P. G. Wakeley, F.R.C.S. (England), F.R.S. (Edinburgh); Twelfth Edition; 1927. London: Baillière, Tindall and Cox. Royal 8vo., pp. 1,590, with illustrations. Price: 30s. net.

Diary for the Month.

DEC. 19.—New South Wales Branch, B.M.A.: Organization and Science Committee.
DEC. 20.—Tasmanian Branch, B.M.A.: Council.
DEC. 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.
DEC. 21.—Western Australian Branch, B.M.A.: Branch.
JAN. 3.—Tasmanian Branch, B.M.A.: Council.
JAN. 10.—Tasmanian Branch, B.M.A.: Branch.
JAN. 10.—New South Wales Branch, B.M.A.: Council.
JAN. 16.—New South Wales Branch, B.M.A.: Organization and Science Committee.
JAN. 17.—Tasmanian Branch, B.M.A.: Council.
JAN. 17.—New South Wales Branch, B.M.A.: Ethics Committee; Executive and Finance Committee.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii..

LAUNCESTON PUBLIC HOSPITAL: Junior Resident Medical Officer (male).

ROYAL NORTH SHORE HOSPITAL OF SYDNEY: Resident Medical Officer.

ST. GEORGE DISTRICT HOSPITAL, KOGARAH, NEW SOUTH WALES: Honorary Orthopædic Surgeon.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to position at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

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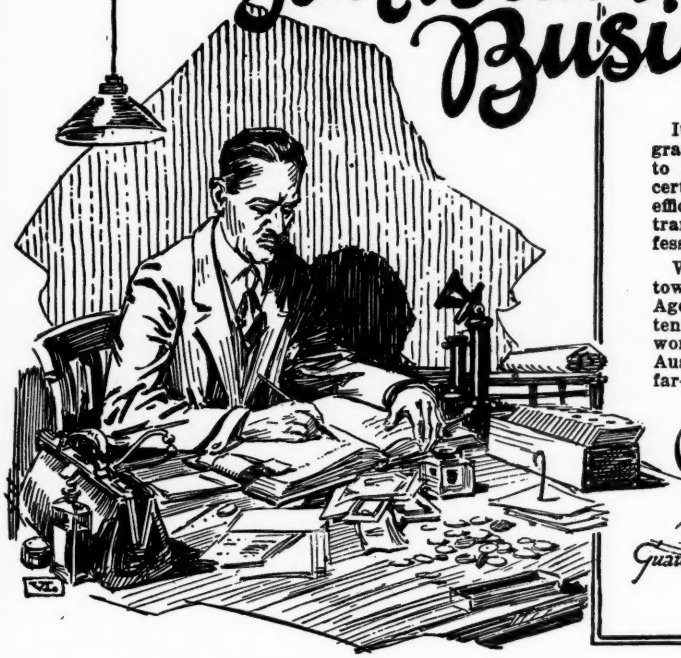

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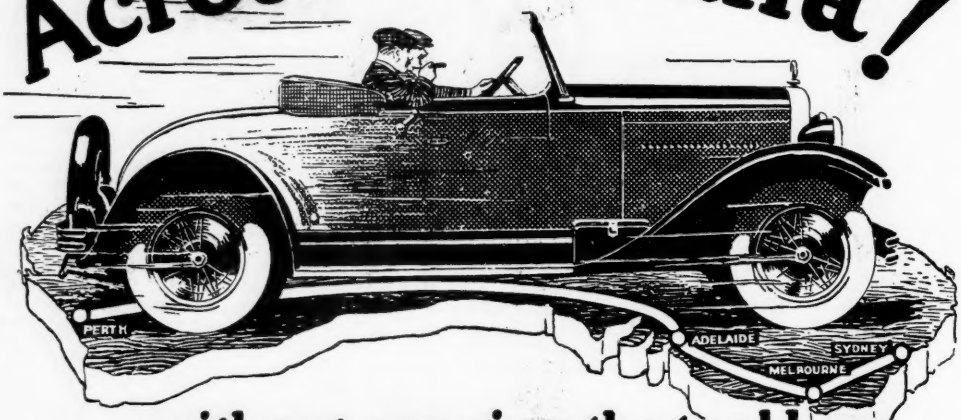

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